

Engineering
Library

NOV 3 1937

Industrial Standardization

and Commercial Standards Monthly



October

See Article on Page 255

1937

This Issue: Our Front Cover: Electric wiring installation. Courtesy Consolidated Edison Company of New York.

ASA Approves 1937 Edition, National Electrical Code. By Victor H. Tousley	255
British, American Standards Problems Similar, Good Tells ASA Council	259
All States Recognize ICC Motor Safety Rules	260
The Trade Association Helps Its Members to Help the Consumer	263
ASA Consumer Goods Committee Advances Work on Standards	267
Informative Labeling Is First Job of Consumer-Retailer Council	268
Nineteen ISA Committees Meet to Consider Standards. By John Gaillard	269
French Weights and Measures Standardized Century Ago	274
Dentists Rely on Standards. By Wilmer Souder	275
Annual Report of Petroleum Committee Notes Advance in Gasoline Standards	280
December First Set for Annual Meeting	283
Surface Profiles Recorded by Lightray Outline	
Method	258
McCaffrey Succeeds McKenzie to Head Canadian Standards	258
Australia to Standardize Railroad Track Gauge	259
New British Standard Defines "Non-Ignitable"	262
British Textile and Standards Institutes Cooperate ..	262
U. S. Labor Standards Division Appoints Cameron ..	262
Public Works Association Issues Pavement Standards	273
Flameproof Electric Motors Covered in British Standard	273
Magalhaes New Member of Standards Council	273
Russian Magazine Gives Data on USSR Metal Standards	274
Institute of Pharmacy Plans "Standards Bureau" ...	274
Railroads Follow Standards in Ordering Freight Cars	274
A.S.T.M. Issues New Edition of Petroleum Standards	279
Tolerances Added in Brick Recommendation	279
Drawings Available for V-Belt Testing Machines ...	279
N.R.D.G.A. Names Lew Hahn as Managing Director	282
Germans Describe Procedure for Tests on Prime Movers	282
Brush Industry Approves Simplified Lists	282
Frank B. Jewett to Speak at ASA Annual Meeting	283
Promote Use of Standards, Urges Machinery Editorial	283
New Zealand Standards Cover Hundred Million Dollars	283
Concentric or Eccentric?	283



AMERICAN STANDARDS ASSOCIATION

ASA MEMBER BODIES

Am. Gas Association
Am. Home Economics Assn.
Am. Institute of Bolt, Nut & Rivet Mfrs.
Am. Institute of Elec. Engineers
Am. Iron & Steel Institute
Am. Petroleum Institute
Am. Soc. of Civil Engineers
Am. Soc. of Mechanical Engineers
Am. Soc. for Testing Materials
Am. Transit Association
Assn. of American Railroads
Assn. of Am. Steel Manufacturers
Technical Committees
Assn. of Gas Appliance & Equipment Mfrs.
Automobile Mfrs. Assn.
Cast Iron Pipe Research Assn.
Electric Light and Power Group:
Assn. of Edison Illuminating Companies
Edison Electric Institute
Federal Housing Administration
Fire Protection Group:
Associated Factory Mutual Fire Insurance Companies
Nat. Bd. of Fire Underwriters
Nat. Fire Protection Assn.

Underwriters' Laboratories Institute of Radio Engineers

Light Metals Group:
Aluminum Company of America
Mfrs. Standardization Soc. of the Valve and Fittings Industry
Nat. Assn. of Master Plumbers
Nat. Assn. of Motor Bus Operators
Nat. Assn. of Mutual Casualty Companies
Nat. Bureau of Casualty and Surety Underwriters
Nat. Electrical Mfrs. Assn.
Nat. Machine Tool Builders' Assn.
Nat. Retail Dry Goods Assn.
Nat. Safety Council
The Panama Canal
Soc. of Automotive Engineers
Telephone Group:
Bell Telephone System
U. S. Independent Telephone Assn.
U. S. Department of Agriculture
U. S. Department of Commerce
U. S. Department of Interior
U. S. Department of Labor
U. S. Govt. Printing Office
U. S. Navy Department
U. S. War Department

ASSOCIATE MEMBERS

Am. Automobile Association
Am. Gear Mfrs. Association
Am. Hospital Association
Am. Soc. of Heating & Ventilating Engineers
Am. Soc. of Refrigerating Engrs.
Am. Soc. of Sanitary Engineering
Am. Trucking Assns., Inc.
Am. Water Works Association
Asphalt Shingle & Roofing Inst.
Associated Gen. Contractors of Am.
Brick Mfrs. Assn. of Am.
Brick Mfrs. Assn. of N. Y.
Grinding Wheel Mfrs. Association
Heat Exchange Institute
Hydraulic Institute
Illum. Engineering Society
Industrial Safety Equipment Assn.
Internat. Acetylene Association
Metal Lath Mfrs. Association
Motor Truck Association of Am.
Nat. Elevator Mfg. Industry, Inc.
Radio Mfrs. Association
Soc. of Motion Picture Engineers
Structural Clay Products, Inc.
U. S. Cap Screw Service Bureau
U. S. Machine Screw Service Bur.
Vacuum Cleaner Mfrs. Association

DANA D. BARNUM, *President*
P. G. AGNEW, *Secretary*

EDMUND A. PRENTIS, *Vice-President*
CYRIL AINSWORTH, *Assistant Secretary*

RUTH E. MASON, *Editor*

OCTOBER
1937

INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY
is published by the American Standards Association, 29 West 39th Street,
New York, with the cooperation of the National Bureau of Standards

Vol. 8
No. 10

Subscription price \$4.00 per year U. S. and Canada (foreign \$5.00); single copies 35 cents

OCTOBER, 1937

Revised National Electrical Code Outlines New Requirements—

ASA Approves 1937 Edition

by

Victor H. Tousley¹

*Secretary, Sectional Committee for the
National Electrical Code*

THE electrical code, under the title of the National Electrical Code, has been in existence for about forty years. Changes in the electrical art, and developments in the methods of installing electrical wires and equipment, have

¹Electrical field engineer, National Fire Protection Association; secretary-treasurer, International Association of Electrical Inspectors.

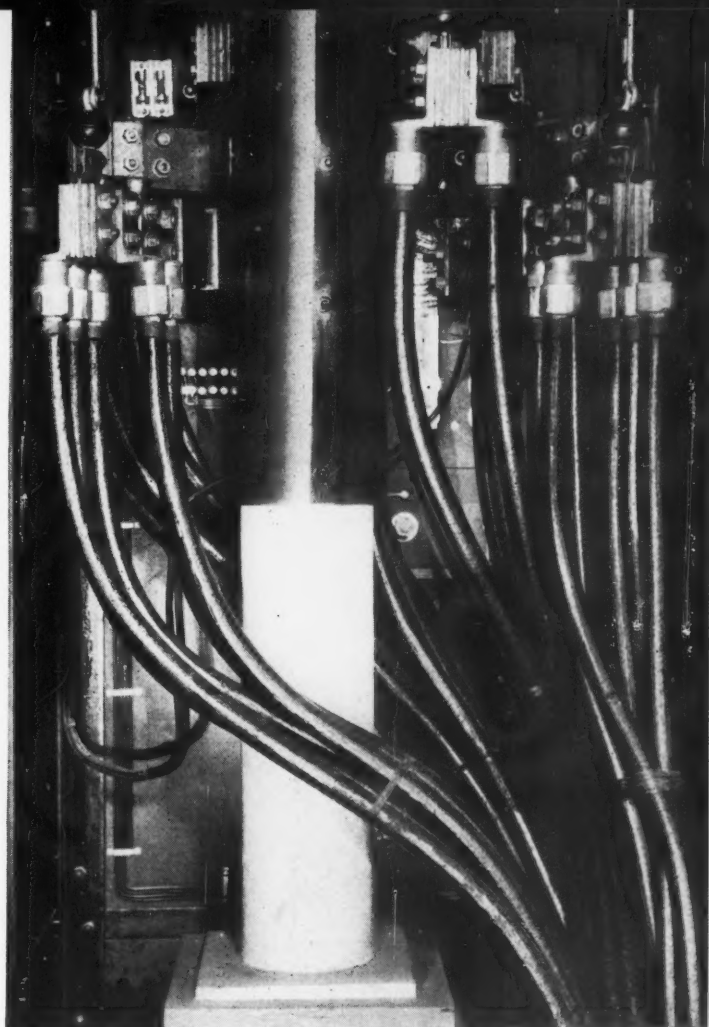


Photo by Ewing Galloway; courtesy Hutzel & Beuhler, Inc.

Wiring to large direct-current circuit breaker

Changes in Technical Provisions Shown in 1937 Revised Code

The 1937 edition of the code for which the National Fire Protection Association is sponsor according to the sectional committee procedure of the American Standards Association is now being distributed by its publisher, The National Board of Fire Underwriters. The project is listed as C1 by the American Standards Association and the new edition was declared an approved American Standard September 13, 1937.

The new edition includes a great number of changes in technical provisions for the installation and use of electric wiring and apparatus in buildings. These were determined upon at a four-day meeting of the sectional committee at Atlantic City last March. They are for the most part of relatively minor significance when contrasted with the import of the text as a whole and its long-time nation-wide application in its field.

The new edition is, however, outstanding in the whole series of twenty or more editions because of the complete change in editorial form and arrangement which was undertaken and executed as described in this article.

necessitated frequent revisions not only in the detailed requirements of the code but also in its general form and arrangement. The last major revision of form occurred in the 1923 edition.

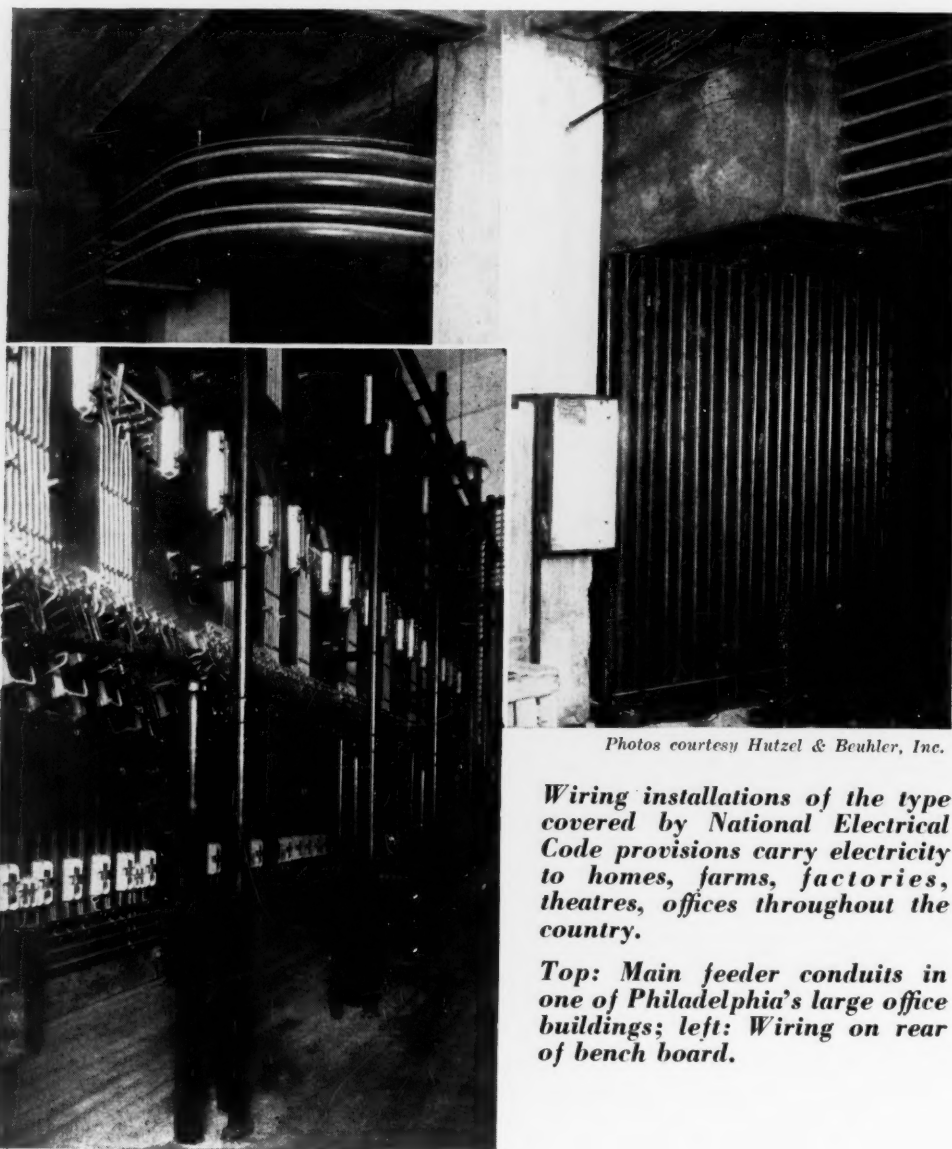
Some few years ago, the representatives of the ASA Electric Light and Power Group on the Electrical Committee called attention to the need for a further revision of the code with particular reference to its form and editorial arrangement. The subject was referred to a special subcommittee of the Electrical Committee which gave it careful study. As a result, the subcommittee was instructed to prepare a complete editorial rearrangement of the 1935 edition of the code. Its report was released in January, 1936.

At a special meeting of the Electrical Commit-

tee in the spring of 1936, the report of this subcommittee was considered. The proposed new form, which applied only to the editorial arrangement, with no revisions in the code specifications, was adopted with some modification as the basis for the 1937 revision.

In the new arrangement there is an introduction and ten chapters, the chapters being arranged in what seems the most logical order for use as a code. All tables, examples, and diagrams have been combined in a special chapter; also what are termed construction specifications, or those specifications used only occasionally by the enforcing authority, are placed in the last chapter.

In the Introduction will be found, for the first time, a comprehensive statement of the scope of



Photos courtesy Hutzler & Beuhler, Inc.

Wiring installations of the type covered by National Electrical Code provisions carry electricity to homes, farms, factories, theatres, offices throughout the country.

Top: Main feeder conduits in one of Philadelphia's large office buildings; left: Wiring on rear of bench board.

the code. This statement sets down in detailed form those features of electrical installations which are, and which are not, covered by this particular code.

Safeguards Against Accidents

The early editions of the code were limited to safeguarding against electrical fires. A number of years ago, however, requirements which were designed to safeguard against electrical accidents were included. With the broader acceptance of the code by governmental authorities, the need for safeguarding against the casualty hazard has become more pronounced. The introduction clearly states that the electrical code is concerned with the "safeguarding of persons".

For many years, the code has inadvertently served as a sort of "adequacy manual". The entire electrical industry is now awakened to the need for adequacy in electrical installations and concerted efforts are being put forth to carry an adequacy campaign to the current-using public. As the requirements of the electrical code are based on safety, rather than on adequate use of electricity or installation of wiring, a statement is contained in the introduction warning against its use as an adequacy manual.

With a publication which covers as extensive a field as the National Electrical Code, it becomes necessary to sub-divide the work of the main committee among a rather large number of subcommittees. As a result, various styles of writing, various modes of expression, and varying uses of words, creep into the code text. A rewriting of the code under the supervision of one committee has tended toward a standardization of the forms of expression.

Need Uniform Interpretation

The need for uniform interpretation, important in any code, becomes of unusual importance in the electrical code, which affects many interests and has an extensive and general application throughout the country. A clarification of code specifications and requirements, the removal of ambiguities, and the insertion of clear and concise statements in the new edition will be of material assistance in securing a more uniform understanding.

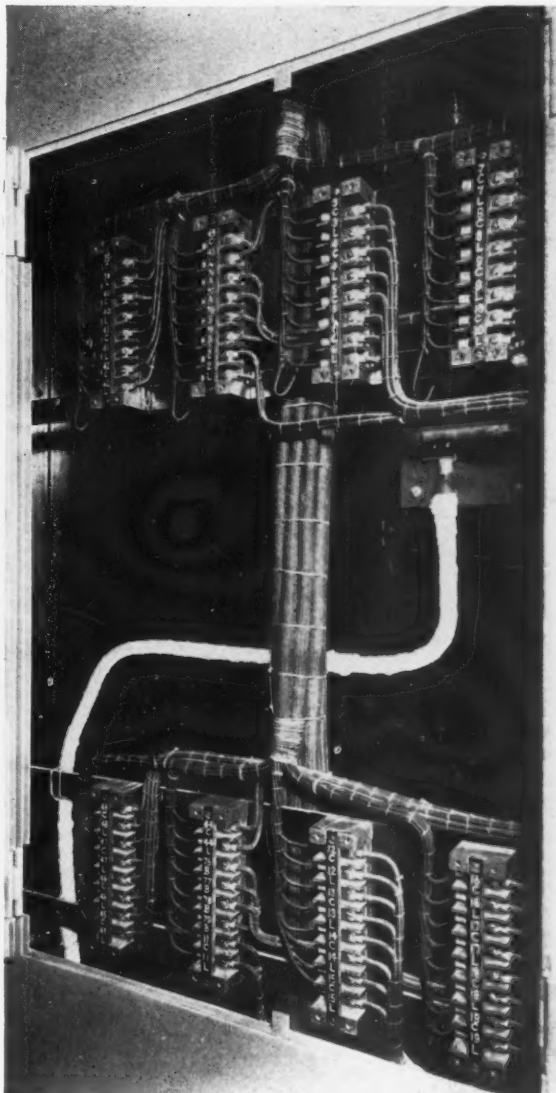
An innovation in the new issue is the presence of captions to each section so that the subject matter can be determined at a glance. The generous use of sub-headings will also facilitate the use of the code as a reference. An attempt has also been made to include in each section only one major subject.

The numbering method adopted for articles and sections was chosen with special reference to

providing for future additions or revisions with a minimum change in article or section numbers. In the arrangement of the new articles consideration has been given to the assignment of articles to subcommittees. In the last edition of the code the specifications for all of the wiring methods were assigned to one committee. As this is an extensive subject, and as these committees work voluntarily, a considerable contribution of time and expense was necessary. In the new code arrangement this subject has been broken down in-

Low-voltage control wiring

Courtesy Electrical & Gas Assn. of New York, Inc.



Revised Code Safeguards Persons, Buildings, from Electrical Hazards

"The purpose of this Code is the practical safeguarding of persons and of buildings and their contents, from electrical hazards arising from the use of electricity for light, heat, power, radio, signalling and for other purposes.

"It covers the electric conductors and equipment installed within or on public and private buildings and other premises, including yards, carnival and parking lots, and industrial substations; also the conductors that connect the installations to a supply of electricity, and other outside conductors adjacent to the premises.

"It does not cover installations in mines, ships, railway cars, automotive equipment, or the installations or equipment employed by an electric or communication utility in the exercise of its function as a utility, and located outdoors or in buildings used exclusively for that purpose."—*National Electrical Code, 1937.*

to twenty articles. These articles have been assigned to five committees and, to facilitate correlation, a general committee made up of the chairmen of the five subcommittees.

The subject of fundamental or basic statements has had the study of the Electrical Committee and a number of these appear in the new edition to indicate the intent and purpose of the detailed rules which follow.

Such minor items as cross-references have had special study. In order to facilitate the use of the code, the subject of the cross reference is referred to in connection with the cross-reference section number.

In previous issues of the code the voltage of the circuit or equipment under consideration has been made the basis of the major code subdivisions. Voltage classification is not now considered of as much importance as heretofore and by the elimination of these major subdivisions duplication has been avoided and space conserved.

The National Electrical Code is adopted as an ordinance by many municipalities and as a statute by a number of states. It is essential that

the code requirements be of a practical nature, from the standpoint both of their application and of their enforcement by regulatory authorities. It is also essential that these requirements be stated in language generally acceptable to the state or municipal legal authorities. This feature of the code was given special attention by the committee and it is expected that the new draft will in general be acceptable to governmental authorities.

Surface Profiles Recorded By Lightray Outline Method

In the section on Surface Profiles which forms part of the review in our September issue of Dr. Gustav Schmaltz' book, *Technische Oberflaechenkunde*¹, mention was made of the use of a fine-pointed needle which is run over the surface under investigation.

Another very ingenious method of recording surface profiles is also discussed in the book. It is called the "lightray outline method" (Lichtschnittverfahren). A flat, thin beam of light—for example, the image of a narrow, straight slot placed in front of the projector condensor—is thrown on the surface to be examined. The reflection of this beam, seen in its own direction, is a straight line. But when the surface is observed, at its general level, in a direction at right angles with the plane of the lightbeam, the surface profile shows up as a light line against a dark background.

Such a profile may be obtained also by means of a flat lightbeam thrown on the surface under an angle less than 90 degrees and regularly reflected. In this case the profile shows a certain amount of distortion.

The book describes equipment used for applying the lightray outline method and gives a number of interesting illustrations of surfaces recorded in this way.

McCaffrey Succeeds McKenzie To Head Canadian Standards Work

Colonel W. R. McCaffrey has been appointed secretary of the Canadian Engineering Standards Association, succeeding B. Stuart McKenzie. Mr. McKenzie, who has been secretary of the C.E.S.A. for eleven years, is retiring because of ill health, but will continue to serve the Association in the position of Consultant.

¹See "Surface Quality in Industry." A Review by John Gaillard. INDUSTRIAL STANDARDIZATION, Sept., 1937, p 249.

British, American Standards Problems Similar, Good Tells ASA Council

COOPERATION between the British and American standardizing bodies, and the similarity of interests and methods of procedure of the two organizations, was the keynote of a talk by Percy Good, Deputy Director of the British Standards Institution, before the Standards Council of the American Standards Association September 23. Mr. Good, who is also secretary of the British National Committee of the International Electrotechnical Commission, was in the United States on a mission connected with the international electrical meetings to be held at London in June, 1938.

The British Standards Institution is particularly interested in the way in which work on consumer standards is developing in the American Standards Association, because the same type of work is developing in Great Britain, Mr. Good told the Council.

Requires "Community of Interest"

"As in your case," he said, "our whole policy is to operate only when industry wants the work done and is ready to participate in it. We have found in our country that there is a tendency on one side or another to press for consumer standards, and we must watch to see that we go forward only when we have a community of interest between producers and consumers.

"Our work in the past has been in the preparation of standards for use in the engineering field where the buyer and seller are competent technically. We are now coming into a field where the producer is competent but the purchaser does not understand technics enough to know whether the goods he purchases conform to the standards set up for them. Our work will be like yours in trying to find a technique whereby such standards are not misused."

Among the problems facing the British Standards Institution, Mr. Good told the Council, is that of preventing the development of standards by groups which do not have an effective cooperative set-up such as that of the British Standards Institution. The word "standard" has been misused, he said, and applied in cases where the standard is merely that of one group acting independently. The BSI already has control over the words "British Standards Institution" and inferentially over the term "British Standard"

through the Trade-Marks Act, which requires a user interest before registering.

"We are hoping very much," he said, "that the term 'standard,' when used in any sense intended to convey an official meaning, can only apply in the way in which the Standards Association has endorsed it; that is, when the producer and the user are satisfied.

"We are hoping your efforts here will give the use of the term 'American Standard' the same protection we are trying to get in our country."

The British Standards Institution is anxious to have cooperation between British standards committees and American committees because, Mr. Good pointed out, many of the problems of the two organizations are similar. "My people are especially interested in having American cooperation in advance of publishing final standards because the era in which our normal units of weights and measures count as a measure of value is passing," he said. "The value of most things which people buy now is not measured by weight and measure and we are charged with a great responsibility in providing units to indicate the new values."

Australia to Standardize Railroad Track Gauge

Australia is now taking action to standardize its railway gauge in order to eliminate some of the many changes now necessary in an overland trip across the country.

A new section of 56 miles of standard gauge has just been completed in South Australia, giving uniformity on a stretch of 1,108 miles between Kalgoorlie and Port Pirie.

At present, the railway situation in Australia shows that New South Wales has the standard 4 feet 8½ inches; Victoria, 5 feet 3 inches; Queensland and West Australia, 3 feet 6 inches; and South Australia has a mixture of 5 feet 3 inches and 3 feet 6 inches.

The early adoption of a standard track gauge and standard car couplings is credited with being an important factor in the development of the present efficient national system of railways in the United States.

All States Recognize ICC Motor Safety Rules

*Uniformity of safety rules
for interstate motor carriers
well established by State action*

*Cooperation of ICC Motor
Bureau with American Stand-
ards Association gave manu-
facturers and operators a voice
in establishing regulations*

ON DECEMBER 23, 1936, the Interstate Commerce Commission promulgated its first Motor Carrier Safety Regulations for common and contract carriers by motor vehicle subject to the Motor Carrier Act, 1935.

The Commission has now announced that these regulations have been recognized by every State, and the District of Columbia, and have been adopted in whole or in part by 26 states. This action is believed to constitute one of the most important steps yet taken toward attainment of nationwide uniformity in safety rules for highway traffic.

The Interstate Commerce Commission regulations, which were issued as the first section of a long-term safety program for interstate buses and trucks, embrace four parts, as follows: "Qualifications of Drivers", "Driving of Motor Vehicles", "Parts and Accessories Necessary for Safe Operation", and "Reporting of Accidents". All of them became effective July 1, 1937, except the requirements for reporting accidents, which went into effect April 1. Continuing its long-term program, the Commission recently issued tentative rules governing the "Transportation of Explosives and Other Dangerous Articles" and "Maximum Hours of Service of Drivers", for public criticism and comment.

Sixteen States have adopted, through action of their regulatory bodies, the first four parts of the Commission regulations, making them applicable to all carriers subject to their respective jurisdictions. Ten other States have adopted portions of the Federal rules in order to establish uniform

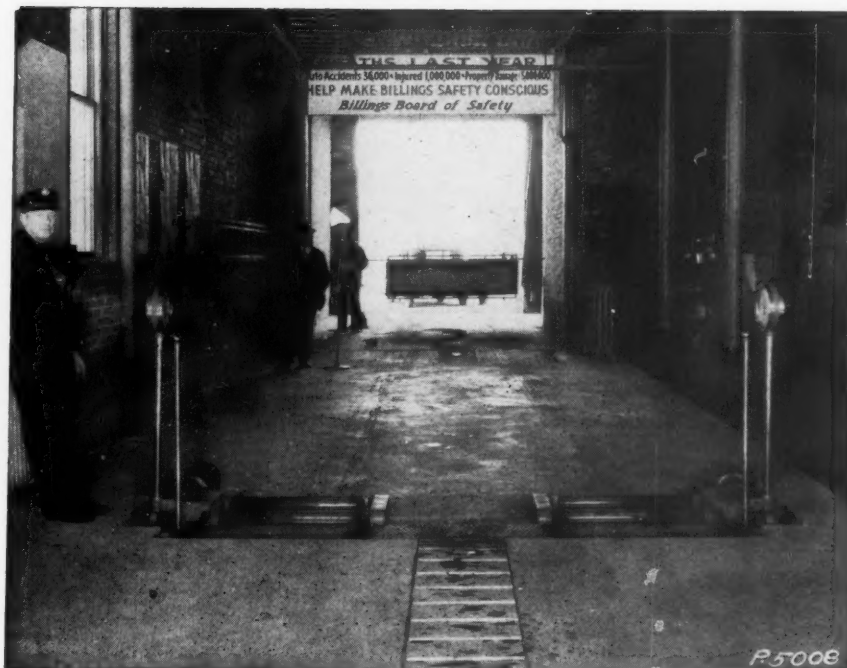
requirements, or have enacted new statutes which grant full recognition to motor carriers complying with the Federal regulations. Twenty-six States, therefore, in a period of seven months, have taken official action to bring about legal conformity with the Commission's uniform rules. One other State has fixed the date for a formal hearing relative to adoption of the regulations, and several more are expected to adopt them before the end of 1937. In the remainder of the States, conflict between the Federal requirements and the existing State rules is either non-existent or of a minor nature, and reports from them indicate that an authorized interstate motor carrier who complies with the safety regulations of the Interstate Commerce Commission will be recognized as exempt from the application of conflicting State laws or rules on the same subject.

With uniformity of safety requirements thus well established, the Commission, through the field force of the Bureau of Motor Carriers, is effecting close working arrangements with the regulatory and enforcement authorities in every State relative to cooperation in policing the new safety

When the Motor Carrier Bureau of the Interstate Commerce Commission started its work on safety regulations in accordance with the Motor Carrier Act of 1935, no generally accepted safety standards for equipment and operation of motor vehicles were available but a committee of the American Standards Association was already at work on the problem. The Motor Carrier Bureau requested the ASA for assistance in the preparation of their proposed safety regulations. The Sectional Committee on Inspection Requirements for Motor Vehicles (D7) formulated a number of safety recommendations which were forwarded to the Bureau.

These recommendations were given careful consideration by the Bureau, and many of them are incorporated in the completed requirements.

When automobile brakes are tested with this equipment in Billings, Mont., they must meet the safety requirements of the Interstate Commerce Commission.



Courtesy Safety Engineering

rules. These authorities include public utilities commissions, motor vehicle departments, highway departments, and highway patrols, all of whom have shown a completely friendly attitude toward the Commission's safety activities.

The following tabulation, based on reports from the District Directors and Supervisors of the Bureau of Motor Carriers of the Commission, reviews State action relative to the Motor Carrier Safety Regulations of the Interstate Commerce Commission:

1. Motor Carrier Safety Regulations of the Interstate Commerce Commission (Parts I to IV, inclusive) adopted by regulatory body for application to all motor carriers subject to its jurisdiction:

Arkansas—By Corporation Commission on May 29, 1937.
 Florida—By Railroad Commission on April 30, 1937.
 Georgia—By Public Service Commission on January 7, 1937.
 Indiana—By State Committee on Safety on June 22, 1937.
 Kentucky—By Division of Motor Transportation on April 26, 1937.
 Minnesota—By Railroad and Warehouse Commission on June 7, 1937.
 Mississippi—By Railroad Commission on February 2, 1937.
 Montana—By Board of Railroad Commissioners on June 1, 1937.
 Nevada—By Public Service Commission on April 29, 1937.
 North Dakota—By Board of Railroad Commissioners, July 13, 1937.

Oklahoma—By Department of Public Safety on June 24, 1937.

South Dakota—By Board of Railroad Commissioners on July 12, 1937.

Tennessee—By Railroad and Public Utilities Commission, February 10, 1937.

Texas—By Railroad Commission on April 27, 1937.

Utah—By Public Service Commission on May 21, 1937.

Wyoming—By Public Service Commission on April 1, 1937.

2. Motor Carrier Safety Regulations of the Interstate Commerce Commission adopted in part in order to establish uniformity between State and Federal requirements, or statutes enacted to recognize compliance with Federal requirements by interstate motor carriers:

California—Vehicle Code amended (Section 765).
 Idaho—Part III (Parts and Accessories) adopted by Public Utilities Commission on May 3, 1937.
 Iowa—New Motor Vehicle Code incorporates numerous ICC rules.
 Kansas—Many provisions of ICC rules adopted by Corporation Commission on March 15, 1937.
 Missouri—Part III (Parts and Accessories) adopted by Public Service Commission on August 2, 1937.
 Ohio—Numerous items from Parts II (Driving Rules) and III (Parts and Accessories) of ICC rules incorporated in revised regulations adopted by Public Utilities Commission on June 30, 1937.
 Pennsylvania—Vehicle Code amended (Sections 409 and 827).
 South Carolina—Many provisions of ICC rules (proposed rules as issued July 1, 1936) adopted by Public Service Commission on November 25, 1936.
 Vermont—New Section 4991 of Public Laws authorizes Commissioner of Motor Vehicles to issue regulations in conformity with ICC rules.

Washington—Many provisions of ICC rules incorporated in new Motor Vehicle Act.

3. Adoption of Motor Carrier Safety Regulations of the ICC under formal consideration:

West Virginia—Hearing set for August 16, 1937, at Charleston, West Virginia, by Public Service Commission. Copies of ICC rules served on carriers with notice of hearing.

Action taken by some of the States listed above applies to private carriers as well as for-hire carriers. Certain States have also enacted laws embodying individual items in the Interstate Commerce Commission safety regulations, and made them applicable to all commercial vehicles. Examples are the requirements concerning the marking of disabled vehicles at night by the use of fuses and flares, the use of the color amber in front clearance lamps on large vehicles, prohibiting the carrying of "hitch-hikers" on trucks, and other items.

New British Standard Defines "Non-Ignitable," "Free-Burning"

A standard which defines such terms as arc-resisting, free-burning, non-ignitable, and self-extinguishing, and prescribes certain conditions under which tests can be made to determine these characteristics for solid electrical insulating materials, has been issued by the British Standards Institution.

The series of tests has been developed and selected to correspond as nearly as possible to working conditions in practice. For example, the Foreword of the standard explains, "The user who desires to specify such a property as 'non-ignitable', has to select the test most appropriate to his working conditions, and to prescribe certain limits with which the materials have to comply on test.

"The readiness with which a material will burn depends upon the conditions of test. Such tests are necessarily empirical. Under a given condition a material may fail to ignite. Under a more severe condition it may be ignited and after removal of the source of ignition may be self-extinguishing. Under a still more severe condition the same material may continue to burn freely. It is for this reason that, in defining such terms as arc-resisting, free-burning, non-ignitable, and self-extinguishing, it has been necessary to prescribe certain conditions. For special purposes and for samples of a special nature, it may be necessary to specify other limits and sizes of sample than those suggested."

The British Standard Definitions for the Non-Ignitable and Self-Extinguishing Properties of

Solid Electrical Insulating Materials (Including Classification and Methods of Test) (B.S.S. No. 738-1937) may be ordered through the American Standards Association Library.

British Textile Institute and Standards Institution Cooperate To Prepare Textile Standards

Standard methods of testing textiles will be set up by the Textile Institute of Great Britain in cooperation with the British Standards Institution, it was announced at the Annual Meeting of the Institute at Manchester in May.

"The first object of the Textile Institute is to place the whole subject of textile testing on a sound scientific basis," says the British magazine, *Silk & Rayon*, in its announcement of the new program. The agreement between the Textile Institute and the British Standards Institution outlines the procedure to be followed and pledges both organizations to work closely together on any standards involving textiles. It recognizes the Textile Institute as the appropriate organization to handle the technical and scientific problems of such standards, and agrees that all standards prepared by the Institute shall be issued as tentative and submitted to the British Standards Institution for its approval, giving the standards the status of British Standards.

Close contacts have been made by the Textile Institute for carrying out this work with the Cotton, Wool, Linen, and Laundry Research Associations. Testing laboratories and trade associations have expressed their interest in the Institute's new program and their willingness to support the undertaking, the announcement says.

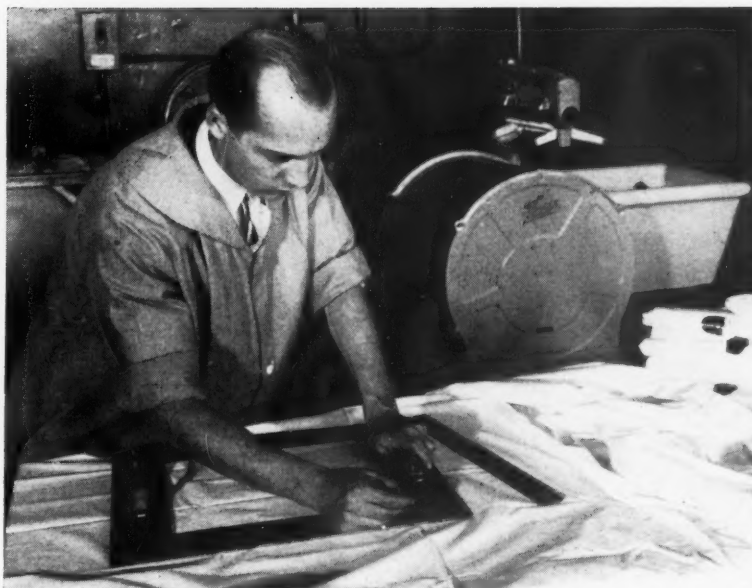
U. S. Labor Standards Division Appoints Cameron Safety Adviser

W. T. Cameron has been appointed Safety Adviser for the Division of Labor Standards of the U. S. Department of Labor, to direct and coordinate the safety and health activities of the Division. He has had ten years' experience in safety promotion work.

Mr. Cameron's program includes additional assistance to the states to raise standards of accident prevention. It also calls for increasing the activities of the Division on occupational diseases and development of safety programs through organized labor, trade associations, and other employment groups.

Marking a sample of cotton cloth with indelible ink before putting it through the washing machine (in the background).

After the material has been washed, the metal square will again be used to determine whether there has been any shrinkage. Several of the organizations mentioned in this article have cooperated with the American Society for Testing Materials in setting up the American Standard Method of Test for Shrinkage in Laundering of Woven Cotton Cloth.



Courtesy U. S. Testing Company, Inc.

The Trade Association Helps Its Members to Help the Consumer

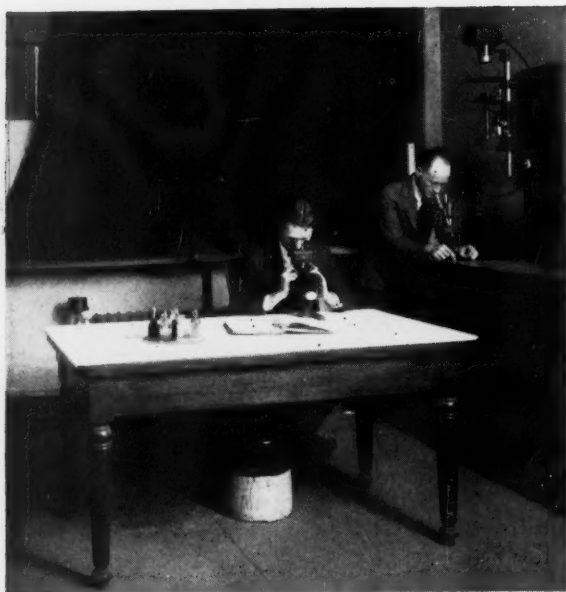
THE following facts were gathered in an inquiry by the American Standards Association as to how manufacturers are responding to the present consumer agitation for standards by action through their trade associations. Has the movement which first influenced retailers, resulting in such merchandising policies as Chatham's use of specifications for sheets, Macy's Bureau of Standards, Marshall Field's labeling program, Sears Roebuck's "Consumer's Buying Guide" gone far enough to affect the trade association? If so, is the association taking an active part in the movement? What type of work is being undertaken? What results if any in the way of better consumer-producer-retailer relations may be attributed to the activity? What can we expect for the future?

Included in the inquiry are manufacturers of such staple consumer goods as cottons, woolens, soap, glass wear, shoe laces, underwear, lead pencils, school supplies, upholstery and drapery, wall paper, knitted wear, gas appliances, electrical appliances, lace, stockings, furniture, etc.

Out of 53 national associations volunteering in-

Editor's Note—This is a survey of what is being done by trade associations in the way of standards for consumer goods. No effort has been made, however, to evaluate any of the standards so developed. It must also be remembered that this article refers only to consumer goods. Many associations in the producer goods field have carried on effective standardization programs for a number of years.

formation, 35 are carrying on programs of standardization as a regular part of their activities. Three maintain special testing laboratories and issue seals of approval for certain manufactured products in their field. Another has a textile approval service. Fifteen have standing committees to plan and carry out their standardization work. One has as many as 25 subcommittees do-



Courtesy National Association of Hosiery Manufacturers

In developing standard tests for hosiery, the microscope is used to examine the hose for flaws or defects which the eye cannot see.

ing research on specific standardizing problems of the industry. One association started its standardization program more than ten years ago and others have been actively engaged in this work for three or more years—proving that the trade association has by no means been driven into the standards movement by recent consumer-agitation, but was carrying on manufacturer-initiated projects for its members years ago. Seven associations sent us the details of extensive research programs which they are undertaking to serve as the basis of standards and there are undoubtedly other research programs that we have not heard about.

The trade association is not isolated in its standardization work. Twenty-eight of the 53 heard from are cooperating in the work of the American Standards Association, or with trade associations, departments of the Federal government, the American Society for Testing Materials or other inter-industry agencies. Many have taken part in the development of Commercial Standards under the National Bureau of Standards.

It is interesting to note the number of associations wishing to keep in touch with standardization activities. Even the National Association of Merchant Tailors who explained that their "sole reason for existence is individuality" requested

to be kept informed of progress in standardization work. Out of 53 associations only one said that it was not interested in standardization developments, and 49 definitely stated that they were.

What Some Associations Are Doing

Here are a few of the standardization jobs that trade associations are undertaking.

The Glass Container Association of America is working on standard methods of test and on a durability test for glass. It has also standardized such containers as milk bottles, beverage bottles, beer bottles, etc., and it has standards covering caps and finishes for all glass bottles. The Shoe Lace Institute developed the original Standard Length Testing Provision which has since been incorporated in the Simplified Practice Recommendation for Braided Shoe Laces issued by the National Bureau of Standards.

Members of the Metal Window Institute manufacture all their products, other than exclusive patented lines, to uniform sizes, types, and specifications. The Coordination Committee of the Metal Window Institute maintains and expands industry standards. Its Technical Committee carried on research at the Massachusetts Institute of Technology and the University of Michigan in light distribution, air infiltration, etc. The Mirror Manufacturers Association has in cooperation with the Bureau of Standards developed a Commercial Standard for Plate Glass Mirrors which is widely used by the industry. While manufacturers of woven and braided fabrics in the Narrow Fabrics Institute have no standards committee, they have cooperated in the development of the Commercial Standard for Overall Elastic Webbing and of a Simplified Practice Recommendation for Elastic Shoe Goring.

In the textile field the National Association of Wool Manufacturers helped to develop the Commercial Standard for Wool and Part-Wool Blankets. It has given the standard teeth by means of its Rules of Practice and Merchandising, and broadened it to cover camp blankets, steamer rugs, auto robes, and similar articles. It has a recommended standard for Wool and Part-Wool Fabrics, and assisted in the development of the Commercial Standard for the Testing and Reporting of Woven Dress Fabrics. Recently it has been working on regulations for the labeling of knitted wear and woven fabrics containing special fibers such as camel's hair.

The National Federation of Textiles has developed an improved grading of raw silk. It has also set up standards for testing silk. At the same time it is carrying on research in problems of wear—for instance the effect of weighting on wear, and the development of standard wearabil-

ity tests. It has also, in an effort to develop standards of nomenclature, launched a campaign to protect the world "silk" from misuse. The Linen Trade Association is doing the same thing for the use of "linen" in advertising.

The Association of Cotton Textile Merchants has secured general market adoption of a Standard Cotton Textile Salesnote fostering a mutual consideration of contractual obligations throughout the industry. It has also furthered the adoption of standard widths and lengths for sheets and pillow cases, as have both the National Association of Bedding Manufacturers and the Cotton-Textile Institute. The Cotton-Textile Institute has also worked toward reducing the number of towel sizes. The New England Bedding Manufacturers Association has standards covering sizes and specifications for certain types of mattresses. The National Upholstery and Drapery Textile Association has adopted the Commercial Standard covering specifications and methods of test for mohair pile fabrics. The National Tent and Awning Manufacturers Association has standardized lengths, widths, and weights of canvas. It is now contemplating standardization of a certain size of tent complete with accessories. In the finishing field, it is standardizing tests on waterproofing, and mildewproofing of canvas.

Other associations in the textile field test the

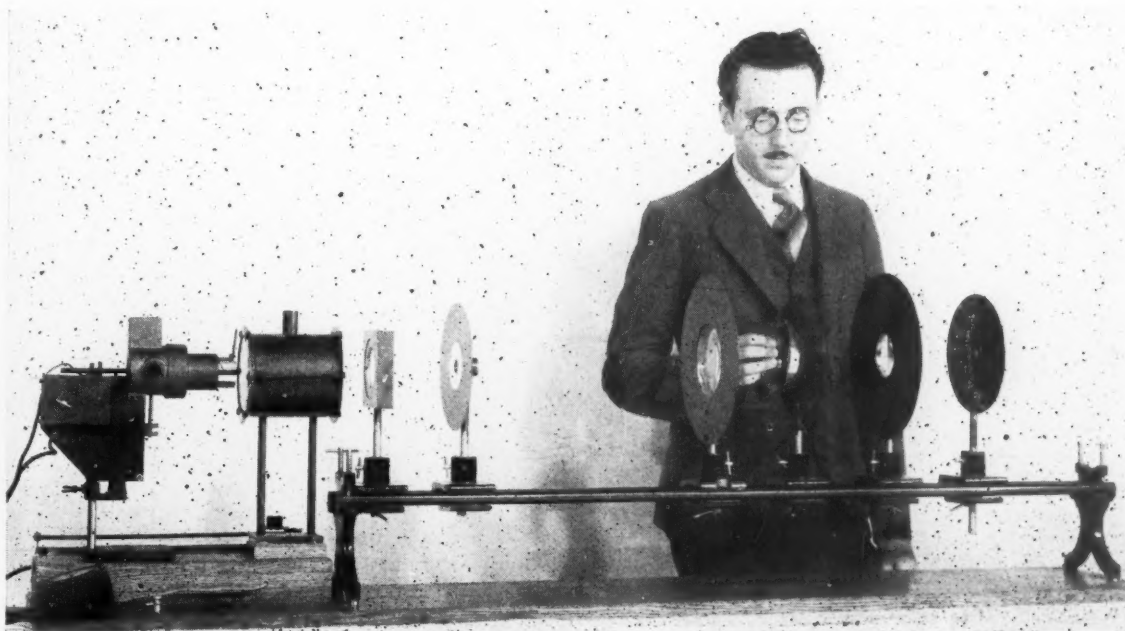
fastness of materials to the fulling process, to light, to sea water, etc., (American Association of Textile Chemists and Colorists), and to various dry cleaning methods (National Association of Dyers and Cleaners). The American Association of Textile Technologists has a Fabric Laboratory Committee. The National Association of Dyers and Cleaners has recently established a textile approval service for manufacturers of fabrics, which is operated according to the standards of rating drawn up by its research department. The Texurity Guild is advocating the approval of a Commercial Standard for pre-shrinkage of woolen and worsted fabrics now before the National Bureau of Standards. The Laundryowners National Association has set up standards for garment washing through its "laundry tested and approved" program.

Standardizes Pajama Sizes

In ready to wears, the National Pajama Guild has standardized sizes of men's pajamas leading to promulgation of a Commercial Standard. The Guild now hopes to develop standards for fastness of color, fabrics, stitching, etc. The National Knitted Outerwear Association has a standard for swim suit and sweater sizes, which has recently been submitted for approval as a Commercial

Durability tests for glass are now being developed. Here, a piece of glass is being tested to determine whether any strain which would make it excessively fragile is present.

Courtesy Electrical Testing Laboratories



Standard. The Underwear Institute has published a booklet of standard sizes. The hosiery manufacturers, in addition to the Commercial Standard for sizes of all types of hosiery, have set up a standardization committee on ladies' full fashioned hose. Their research staff is engaged in developing standard methods of testing silk, and also in the development of tests for hosiery.

The Lead Pencil Association has had a standards committee for some six or seven years. Both the association and the Federal government have tried and failed to set up standards of quality. The association has, however, a set of manufacturing standards for pencils of various grades of hardness.

Thirty-five Associations Show Interest in Consumer Standards

Out of the 53 associations furnishing material as to their standardization activities, these 35 are taking an active part in the development of standards for goods sold across the counter at retail.

Aluminum Wares Assn.
American Assn. of Textile Chemists & Colorists
American Assn. of Textile Technologists
American Gas Association
Assn. of Cotton Textile Merchants
Assn. of Edison Illuminating Companies
Cycle Trades of America
Edison Electric Institute
Glass Container Assn. of America
Laundryowners National Assn. of the U. S. & Canada
Lead Pencil Association, Inc.
Linen Trade Association
Metal Window Institute
Mirror Manufacturers Assn.
Narrow Fabrics Institute
National Assn. of Bedding Mfrs.
National Assn. of Dyers and Cleaners
National Assn. of Hosiery Mfrs.
National Assn. of Retail Clothiers & Furnishers
National Assn. of Wool Mfrs.
National Electrical Mfrs. Assn.
National Federation of Textiles, Inc.
National Knitted Outerwear Assn.
National Pajama Guild, Inc.
National Paperboard Assn.
National Paper Box Mfrs. Assn.
National Retail Dry Goods Assn.
National Tent & Awning Mfrs. Assn.
National Upholstery & Drapery Textile Assn., Inc.
National Wall Paper Wholesalers' Assn.
New England Bedding Mfrs. Assn.
Shoe Lace Institute
Specialty Paper & Board Affiliates
Texurity Guild
Underwear Institute

The size and capacity standards of the Aluminum Wares Association; the committee on standardization of bicycle tires and rims of the Cycle Trades of America; the box board thickness recommendations adopted by the National Paperboard Association; the bursting, brightness, and tear tests for paper developed by the Specialty Paper and Board Affiliates; are other examples of trade association activity in the field of standards for consumer goods.

Why Associations Are Standardizing

Why are Associations standardizing? "To curb and discourage the output of inferior merchandise" says the Aluminum Wares Association. The Glass Container Association and the Hosiery Association have found that standardization permits them to produce better products at a lower cost. All along the line the chief purposes of manufacturing associations in their standardization work have been:

- To improve the product.
- To lower production costs.
- To establish greater consumer confidence which will result in lowered cost of selling.

The story of what the American Gas Association has been able to accomplish with its standardization program for gas-burning appliances, backed by the AGA Laboratory seal of approval, is outstanding. Today fully ninety percent of all gas appliances made in this country conform to these standards. The Radio Manufacturers Association, the Association of Edison Illuminating Companies, the Illuminated Glass Guild, the Wall-paper Association, also issue seals of approval.

Five Classes of Standards

Throughout this almost bewildering variety of standardization programs a few trends are apparent. For instance, all the different standardization jobs being undertaken by trade associations in the consumer field may be grouped into about five different classes. The most popular seems to be standardization of sizes and capacities. Second come performance standards—for strength, wearability, fastness, etc.—necessitating the development of standard methods of test. Third come standards for grading and labeling and for nomenclature. Fourth, construction specifications. Fifth are a number of standards covering the more general aspects of finishes and trimming.

Practically all the projects being undertaken seem to be of a basic nature, usually cutting across a whole industry, but not encroaching upon the individuality of a product—its style. Practically all, when completed, will contribute to better fit or wear, or the customer's convenience

in replacement or in making additional purchases.

Chief among the difficulties encountered in standardization work have been: diversity of products and fabrics; and lack of satisfactory test methods. Lack of satisfactory test methods is today holding up a number of rather important projects in the textile field.

To increase the effectiveness of what they are doing, some associations have gone directly to the consumer with publicity explaining their programs. The National Retail Dry Goods Association has given wide publicity to its "platform" which includes an extensive program of standards

for the betterment of consumer relations. The Linen Trade Association is doing the same.

Several associations are experiencing another difficulty. One secretary writes: "In the past few years our industry has broken up into many smaller units and none of these have a research program providing a background for standardization." The cooperation of industry and adequate research are essential to the success of any standardization program. Many associations faced with the difficulty of getting their standards widely enough accepted to render them effective are seeking the cooperation of inter-industry groups.

ASA Consumer Goods Committee Advances Work on Standards

AT ITS MEETING September 17 in New York, the Advisory Committee on Consumer Goods of the American Standards Association continued work on the complicated problem of developing standards for certain staple and semi-staple products sold across the counter at retail. This committee, which includes representatives of five national consumers' organizations with memberships running well into the millions, three departments of the federal government, and the National Retail Dry Goods Association, has since its organization a year ago been coordinating and directing the work of the American Standards Association in the consumer field.

Recommendations on standards that will aid the consumer in her buying were made by several subcommittees. These recommendations will pave the way to the actual development of standards by ASA sectional committees later on.

Shoe Standards Difficult

The committee finds that the standardization of shoes may prove to be a difficult problem, complicated by variety in methods of measuring, the number of lasts used, shapes of feet, as well as by the style element. The subcommittee which has made a thorough study of existing information in this field felt that it would be some time before definite results can be hoped for on the part of the consumer. Nothing will be recommended for the present on the marking of shoes as to type of construction, as it was felt that this is of far less interest to the consumer than the fit of the shoe

and its wearing qualities. As a beginning, the committee has made recommendations covering the development of standards for sizes of children's shoes alone. Recommendation was also made that standards for quality of uppers and of soles and for workmanship be developed.

Definitions of materials used in shoes will be part of the project on Standard Definitions of Terms Used in Retailing, authorized by the ASA last spring. Work on this dictionary of retail terms, which is number one job of the National Retail Dry Goods Association as announced in its platform for the current year, is now under way.

Standardization of sizes of children's garments and of patterns of children's garments is another fundamental job approved by the ASA upon recommendation of the Advisory Committee. It is to be based on an actual study of body measurements of children measured at random from eight selected regions of the United States. This survey is now being carried on under the leadership of the U. S. Bureau of Home Economics by 9 cooperating state colleges and universities. Thirty-six body measurements are being taken on each child.

Representatives of pattern manufacturers, garment manufacturers, retailers, consumers, and statisticians, met with technical experts of the U. S. Bureau of Home Economics September 16. Plans to make these measurements most serviceable to manufacturers of garments and of patterns and to the ultimate consumer were discussed. Out of this study it is hoped that a more logical and useful system of sizing for children's garments will be developed.

Another subcommittee recommended the development of standards for sheets involving five classes, the first to be designated as percale, the second by a distinctive name such as muscale, and three grades of muslin sheets. Recommendations were made on thread count, shrinkage, and size of sheets. These recommendations will be turned over to the sectional committee of the ASA that is working out actual standards in this field. A committee on labeling will advise with retailers and manufacturers as to how buying information about any particular grade of sheet can best be passed on to consumers.

Reports of progress were also received from the subcommittees on Labeling of Boy's Clothing, Gas Burning Appliances, Household Refrigerators, Color Permanence, Hosiery, and Bedding and Upholstery.

The Advisory Committee on Consumer Goods

of the American Standards Association is under the chairmanship of Harold W. Brightman, vice-president of L. Bamberger and Company, and chairman of the Merchandising Division of the National Retail Dry Goods Association. Ruth O'Brien of the U. S. Bureau of Home Economics is vice-chairman. Its membership includes representatives of the following organizations:

- American Association of University Women
- American Home Economics Association
- General Federation of Women's Clubs
- National Association of Purchasing Agents
- National Congress of Parents and Teachers
- National League of Women Voters
- National Retail Dry Goods Association
- U. S. Department of Agriculture, Bureau of Home Economics
- U. S. Department of Commerce, National Bureau of Standards
- U. S. Department of Labor, Consumer's Project

Informative Labeling Is First Job Of Consumer-Retailer Council

AS AN answer to many of the problems of consumer buying and retail selling, the Consumer-Retailer Relations Council, meeting September 17 at New York, initiated a program designed to enable consumers better to judge values and uses in the merchandise they buy, through adequate informative labeling, according to a statement of the Board of Trustees of the Council.

Many requests for this type of assistance have come to the Council from manufacturers, retailers, and consumers. Even though the organization of the Council itself is still in provisional form, a number of activities are under way.

Will Study Labels

With the cooperation of consumer groups, manufacturers, and retailers, the Committee on Labeling of the Council plans to study the various labels now attached to commodities in the retail market and recommend improvements which will make them more helpful to consumers. Such suggestions will be available to manufacturers and distributors wishing to initiate labeling programs and to know the types of labels acceptable to consumers and retailers active in the present consumer movement.

The committee will prepare an exhibit of labels and plans to consult with manufacturers, retailers, and others interested in the development of a labeling program.

The formation of several other committees of the Council is contemplated, including one to cooperate with consumer and retailer groups throughout the country who desire to establish local organizations concerned with consumer-retailer relations. Progress in this direction has already been made in several of the larger cities, it is reported.

The Consumer-Retailer Relations Council, which is cooperating closely with the Advisory Committee on Ultimate Consumer Goods of the American Standards Association, is an independent organization composed of national associations of consumers having a program definitely concerned with the problems of consumer buying, and national associations of retailers.

Other associations or individuals interested in the objectives of the Council will be called upon to act in an advisory capacity.

It is provided that consumer groups will at all times have the controlling vote both as to membership on the Council and as to control of policies. The Council will be financed by voluntary consumer and retailer contributions.

Nineteen ISA Committees Meet to Consider Standards

by

John Gaillard

Mechanical Engineer, American
Standards Association

American Standards Are Rated Highly in Several International Projects

REPORTS of 19 international technical committees which met this summer at Paris and London to consider action on international standards have been received by the American Standards Association, member of the International Standards Association. The American experts nominated by various industrial groups through the ASA to keep in touch with the international program are advised in detail by the ASA on action taken. It is believed, however, that a resume of the progress shown at these meetings will be of interest to all ASA members.

Eighteen technical committees, attended by 220 delegates from 17 countries, held meetings at Paris in June:

Aeronautics (ISA 20)	Preferred numbers (ISA 32)
Automobiles (ISA 22)	Ships' elements (ISA 8)
Ball and roller bearings (ISA 4)	Sieves (ISA 24)
Belts and pulleys (ISA 41)	Sprinkler systems (ISA 21)
Coal (ISA 27)	Standard diameters (ISA 19)
Drawings (ISA 10)	Steel and iron (ISA 17)
Machine tools (ISA 39)	Terminology (ISA 37)
Petroleum products (ISA 28)	Tools (ISA 29)
Pipe lines (ISA 5a)	Wood screws (ISA 26)

The meeting on Aeronautics (ISA 20), Automobiles (ISA 22), and Petroleum Products (ISA 28) were attended by C. B. Veal, Research Manager, Society of Automotive Engineers.

The technical committee on Tires, Rims, and Tire Valves (ISA 31) met at London in July, and was attended by R. T. Brown, Goodyear Tire and Rubber Company and his alternate, Mr. Brittain, British Goodyear Tire and Rubber Company, Ltd.

Wood Screws (ISA 26).—This subject, which has to do with the diameter and length

of the screws, has not been taken up under the procedure of the American Standards Association. The ISA committee has decided to take the series of dimensions of Nettlefolds, a British manufacturer, as a basis for standardization.

Ball and Roller Bearings (ISA 4).—The ASA office regularly maintains the contact between this ISA committee and ASA committee B3 on the same subject. Part of the extensive program of work mapped out by the ISA committee was discussed at the Paris meeting, covering: Inside diameters of housings; radial ball bearings (extension of types and diameter series); corner radii; thrust ball bearings; measuring technique; and designation of bearings.

Pipe Lines (ISA 5a).—Because this ISA work is entirely in metric units, there is no interchangeability with pipe, flanges, and fittings as standardized by ASA committee B16, Pipe Flanges and Fittings. However, unified metric standards will facilitate the problems of the American manufacturer, in connection with equipment to be exported, for example.

The ISA committee added Identification Colors for Pipe Lines to its program. All of the foreign bodies are familiar with the American Standard, Scheme for the Identification of Piping Systems.

Ships' Elements (ISA 8).—The two subcommittees of this committee, one on Seagoing Vessels, and one on Vessels for Inland Navigation, met in Paris. Activities of the subcommittee on Seagoing Vessels have been reported for several years to the American Marine Standards Committee and to the American Bureau of Shipping.

Drawings (ISA 10).—The subcommittee on Welding Symbols discussed a draft proposal which will be reported to ASA committee Z32 on

Graphical Symbols and Abbreviations for Use on Drawings, for its information.

Steel and Iron (ISA 17).—Subcommittees of this international committee met in Paris on: Classification of steel and iron; methods of test; terminology and symbols; purchase specifications; and heat treatment.

F. N. Speller, National Tube Company, is the American expert to whom reports of this committee are referred. Copies are also sent to the American Society for Testing Materials and the American Iron and Steel Institute.

Standard Diameters (ISA 19).—The purpose of this project, which concerns primarily the mechanical industry, is to reduce the variety of cutting tools, such as drills and reamers, by setting up diameters to first choice, second choice, etc., for holes and shafts and other parts that are to match holes. Because metric dimensions are used, the project is only of indirect interest to us.

Aeronautics (ISA 20).—Some six years ago, the ASA office tried to awaken the interest of American groups in this project, emphasizing particularly its significance to the future development of trans-oceanic airways. For example, interchangeability of parts is a matter of primary importance in the maintenance of aircraft used in transportation. We were advised to refer the problems dealt with by this ISA committee to the Society of Automotive Engineers. This Society has been kept regularly informed about the international work. There is, however, no American representation on the ISA committee.

The Paris meeting dealt with the following problems: Fuels, rims and tires; identification colors for conduits; structural and conduit tubing; board instruments with movable dial; propeller hubs; operation characteristics of airplanes and engines; aluminum and light-alloy rivets; light-alloy sections; spark plugs; electric cables; magnetos; and symbols.

Sprinkler Systems (ISA 21).—The National Automatic Sprinkler Association having shown no interest in this project, the American Standards Association is not represented on this ISA committee. At the Paris meeting, it was agreed that the British rules for sprinkler systems will be used by the committee as a working basis.

Automobiles (ISA 22).—American industry, which might be expected to play a leading role in the work of this ISA committee, is not represented on ISA 22, but developments are regularly reported to the SAE by the ASA.

At the Paris meeting, attended by 84 delegates, representing eight countries, resolutions were adopted on 29 subjects, some of which are represented below:

Splined shafts is a subject dealt with by one of

the technical committees of ASA committee B5, Small Tools and Machine Tool Elements. Both the automotive industry and the machine tool builders use splined shafts and an effort toward unification was started some years ago.

Roller chains. An American Standard, Roller Chains, Sprockets, and Cutters, approved in 1930, was submitted a few years ago to the ISA committee, with a memorandum prepared by the secretary of the ASA committee on Transmission Chains and Sprockets.

The Paris meeting decided to recommend the British Standard BSI 228-1934 as the sole basis for international unification. The Italian delegation asked that the chains according to the American Standard, generally used in their country, be added.

Polarized light. To eliminate glare of headlamps, polarization in a direction at 45 deg with the horizon had been proposed. The Lighting Division of the Society of Automotive Engineers has tentatively endorsed this proposal, and has decided to study the problem further.

Safety glass. Considerable interest has been shown abroad in the American Standard on this subject. The French body has asked and obtained permission to publish it in translation.

The Paris meeting proposed that the international recommendation should refer solely to the methods of test and purchase specifications of safety glass, and not to the purpose for which it is used.

Sieves (ISA 24).—The American Standards Association, which has a sectional committee on Sieves for Testing Purposes (Z23), is represented on this ISA committee. Dr. Judson, National Bureau of Standards, Washington, D. C., secretary of Z23, is the American expert to whom all reports are referred by the ASA.

At Paris, progress was made in the discussion of the basic data for the width of mesh and the thickness of the wires of sieves.

The ISA committee further decided that no detailed acceptance specifications should be given for test sieves, but only general instructions to serve as a guide.

The committee also agreed to take up the standardization of perforated sheet metal sieves, with hole diameters up to 10 cm (about 4 inches).

Coal (ISA 27).—The American expert on this ISA committee is Dr. A. C. Fieldner, chairman of ASA sectional committee M20, Classification of Coals. The Polish body, which has acted as the secretariat of this ISA committee since it was organized in 1930, has asked to be relieved of this responsibility. At the Paris meeting of the ISA Council, the British delegation offered to take over the secretariat.

Resolutions were adopted on the following: Moisture content; ash content; content of vola-

International Standards Help Sale of American Products

Cooperation with the International Standards Association offers American industrial groups a real opportunity of doing away with restrictions to the sale of their products abroad. It is an opportunity of which European business groups have been particularly conscious during the depression period. The adoption last year of a world standard for 16-millimeter sound film, the international standardization of bearings, the adoption of inch-millimeter conversion tables have already pointed the way to American business to what can be accomplished through cooperation with the other industrial countries of the world.

My attendance at the Plenary Assembly of the International Standards Association and discussions with individual representatives of the various countries present brought home to me the importance

of American industry participating in the work of the ISA. There are a number of ISA projects of considerable importance to various American industrial groups, although these groups are not at the present time cooperating in the international work on these subjects.

The differences in languages, methods of measurement, nomenclature, etc., which have previously appeared to preclude any great participation by American industry in international standardization, no longer appear to be obstacles, if in fact they ever were.

It would therefore seem fitting that American industry should take a much greater interest in the work of the International Standards Association than it has in the past, and through the American Standards Association participate in the development of any projects which may affect its international trade.
—Cyril Ainsworth, *ASA representative at the Plenary Assembly, International Standards Association, Paris, June 26.*

tile matter; determination of calorific value; reports on analysis; and coordination of national work through the International Standards Association.

Nomenclature and methods of test of petroleum products (ISA 28).—In 1930, the American Standards Association was invited to take charge of the secretariat of this project and accepted. The organization meeting was held in London, July, 1933. In June, 1936, the ASA sent out to the other participating countries a Proposed Dictionary of Terms for the Petroleum Industry (covering products, specifications, and methods of test) in English, French, and German, prepared by subcommittee XX of the American Society for Testing Materials' committee D-2, Petroleum Products and Lubricants.

Fourteen national standardizing bodies are represented on this ISA committee and in addition the British have taken part in the work through the Institution of Petroleum Technologists.

At Paris this year, 12 of these 15 countries were represented by 59 delegates. In the absence of Dr. R. P. Anderson, chairman of the committee, the chair was taken by R. Girardeau,

secretary of the French standardizing body. C. B. Veal, Society of Automotive Engineers, was present as an American delegate.

The resolutions adopted by the ISA committee aim at the speeding up of the work on nomenclature as well as methods of test. To this end, the work was divided and each division assigned to a subcommittee which is to have its own secretariat in one of the national standardizing bodies. The plan for this division of work was developed by a subcommittee on Program of Work, of which A. Huber-Ruf, general secretary of the International Standards Association, is chairman. The subcommittee has a membership of nine countries: Austria, Belgium, Denmark, France, Germany, Great Britain, Holland, Italy, and Sweden.

Nomenclature. Certain principles to be observed in developing the work were adopted, including the assignment of each of the chapters of the Dictionary to a separate subcommittee. There are to be six subcommittees as follows:

- (a). Geology and geophysics (secretariat: Austria)
- (b). Extraction and drilling (secretariat: United States)
- (c). Refinery (secretariat: Holland)

- (d). Products and their use (secretariat: Great Britain)
- (e). Tests and properties (secretariat: France)
- (f). Transportation, storage and distribution (secretariat: Germany)

Graphical and Letter Symbols. This work is to parallel that on nomenclature and to be coordinated with the ISA projects on symbols and drawings.

Methods of Test. Here, a list of 24 subjects was made up, each of ten countries taking charge of one or more secretariats. The subjects assigned to the American Standards Association are: Vapor tension; knock characteristics; and colorimetry.

Each subject will be studied by the secretariat concerned, which will draft a report to be sent to all countries participating, to the American Standards Association (as the central secretariat of ISA 28), and to the general secretary of the International Standards Association. The Standing Committee of the World Petroleum Congress will also be kept informed regularly concerning the progress being made.

Rules for drafting the reports were adopted. It is gratifying to note how high a value the foreign standardizing bodies place on the test specifications of the American Society for Testing Materials. The new ISA rules on this subject require that these specifications shall always be taken as the basis to start from. They shall be given in the report of each secretariat, accompanied by a critical study of their advantages and disadvantages.

The World Petroleum Congress confirmed the stand it took at the first Congress in London, 1933, to the effect that it will cooperate to avoid duplication of work and establishment of recommendations conflicting with those of the International Standards Association. The resolution adopted by the Congress also requested that all proposals submitted by the Congress to the ISA be dealt with as quickly as possible.

Tools (ISA 29).—The American Standards Association is not represented on this committee, but ASA committee B5, Small Tools and Machine Tool Elements, is kept informed about developments that may be of interest to it.

The Paris meeting made considerable progress on: Reamers; taps; twist drills; keys for milling cutters; cross-sections of tool steel; and grinding wheels.

The Paris meeting decided to draft an ISA recommendation for grinding wheel types and sizes given in millimeters, based on the series of wheels commonly used in the United States. The nominal dimensions will be given large enough tolerances to make our inch dimensions acceptable.

A subcommittee was appointed to draft a proposal for disk-shaped grinding wheels.

Preferred Numbers (ISA 32).—The American Standards Association has been cooperating in this work. R. E. Hellmund, chief engineer, Westinghouse Electric and Manufacturing Company, and chairman of ASA committee Z17, Preferred Numbers, has been acting as the American expert. The basic series recommended by the ISA committee are identical with those given in the American Standard approved in 1936.

The Paris meeting put the final touches on the ISA recommendations. A bulletin giving practical examples of the application of Preferred Numbers is under consideration in the ISA committee.

Terminology (ISA 37).—This ISA committee has been organized primarily to develop technical dictionaries in three languages (English, French, and German) particularly in connection with the work of ISA technical committees, that on Petroleum Products, for example.

At the Paris meeting, certain principles and rules of procedure were adopted to govern the development of the dictionaries. The ASA office will study these recommendations and bring them to the attention of the ASA members, and possibly other groups that should know about them.

Machine Tools (ISA 39).—The National Machine Tool Builders Association has declared itself not in favor of American participation in this ISA committee and the American Standards Association is not represented. The ASA office is reporting all developments of interest and has exchanged a considerable amount of correspondence—on the question of milling machine spindle noses, for example. The N.M.T.B.A. adopted a standard in 1927 on this subject, which is generally used in this country but has not been submitted to the ASA for approval. It has a fair chance of being accepted by the ISA committee as an international recommendation.

Other decisions taken at the Paris meeting referred to Acceptance Specifications for Machine Tools (American machine tool builders have declared themselves not to be in favor of taking up this subject), and Electric Motor Frame Dimensions.

Belts and Pulleys (ISA 41).—The purpose of this ISA committee is to unify the width of flat belts and the dimensions of V-belts and the corresponding pulleys. The Society of Automotive Engineers has a standard on the latter subject which has been submitted to the ISA committee.

London Meeting

Tires, Rims, and Tire Valves (ISA 31).—R. T. Brown, Goodyear Tire and Rubber Com-

pany, jointly nominated as the American expert by the Society of Automotive Engineers and the Tire and Rim Association, attended the London meeting with Mr. Brittain of the British Goodyear Company as his alternate.

For general dimensions and practices, the standards of the Tire and Rim Association are given more consideration than any other. The principal discussions in London were between American, British, German, and Italian delegates. France was represented only by an observer.

Nineteen subjects, including rims and tires for automobiles, airplanes, motorcycles, and bicycles, were discussed during the three-day meeting.

Public Works Association Issues Pavement Standards

Standard specifications for pavements, sidewalks and curbs, and for subgrades and foundations for pavements have been published by the American Public Works Association in its *Standard Specifications for Public Works Construction*.

For many years the American Society of Municipal Engineers had as one of its major activities the formulation of standard specifications for the construction of various types of municipal improvements. The present work is a revision and assembly of those specifications. It is published by the American Public Works Association, formed through the consolidation of the American Society of Municipal Engineers and the International Association of Public Works Officials.

"These specifications are intended to serve the public works engineer as guides or models for the preparation of actual contract specifications," says the Association in announcing the book. "They are not intended to be incorporated bodily in any set of contract documents. Local conditions, with which only the engineer responsible for a specific project can be familiar, must always be given full consideration and the specification modified accordingly when necessary. However, when used as guides, these specifications will enable the specifying engineer to be confident that no essential item is overlooked and that the materials and construction methods specified conform to good practice."

Twenty-two specifications on street paving are included in this edition. Nine deal with pavement foundations, two with sidewalks and curbs, one with brick pavements, one with stone block pavements, and nine with bituminous pavements.

The specifications for portland cement concrete pavements and for sewer construction are now

being revised and will be published in the same format in the near future.

The format of this edition is entirely new, designed to facilitate revision and extension of the series. The pages are $5\frac{1}{2} \times 8\frac{1}{2}$ inches, printed on one side only, and punched for a standard loose-leaf binder. The price of the book in loose-leaf form is \$3.00, binder \$1.00. The special edition, which is available to public libraries only, and which costs \$5.00 is supplied with binder and includes service of new specifications as published, and revisions.

Flameproof Electric Motors Covered in British Standard

A British Standard Specification for Flameproof Electric Motors embodied in or designed for operating conveyors, coal-cutters, loaders, and other purposes for use in mines, has been prepared and published by the British Standards Institution.

It includes time ratings for coal-cutter and conveyor-motors to give purchasers and users a basis for comparison of motors made by different manufacturers, and applies to machines having windings insulated with Class A or Class B material wound for voltages not exceeding 650 volts. The standard ratings given in the specification are suitable for machines operating under a temperature of cooling air not exceeding 40 C.

The specification is applicable to motors used with the larger types of electric drilling machines mounted on stands, but is not suitable for application to the smaller type of coal drills held in the operator's hands.

The standard (B.S.S. 741-1937) may be ordered through the Library of the American Standards Association.

Magalhaes New Member Of Standards Council

F. V. Magalhaes, Executive Assistant to the President, Consolidated Edison Company of New York, has been named by the Electric Light and Power Group to succeed R. H. Tapscott as its representative on the Standards Council of the American Standards Association.

As a member of the Standards Council, Mr. Magalhaes will have a vote on all standards and matters of policy concerning standards which are presented to the Council.

French Weights and Measures Standardized Century Ago

FRANCE this year is observing the one-hundredth anniversary of the final adoption of the metric system.

It was in 1837 that the decree was issued that definitely ended the multifarious systems of weights and measures that had been in use for ages in different parts of the country.

When this decree was published the metric system had been in use for some time, but the population was slow in accepting it, and after the fall of Napoleon, who was to a great extent responsible for its adoption and its spread through Europe, there was a wide return to old customs.

Talleyrand is credited with having put forward the original idea, when he proposed to the National Assembly that a universal system of weights and measures should be devised and suggested by France for acceptance by other nations. Scientists gradually evolved the standards that pro-

duced the decimal system, the meter, the gram and the liter, but it was not until 1799 that the meter was officially enthroned.

The French scientists set forth the metric system as one "suitable for all peoples and all ages." Their dream has now become a reality, and in the Palace of Discoveries in the Paris Exposition of 1937 there is a map showing that the metric system is in use and legal in every country of the world. In the British Empire and the United States the metric system is employed for scientific measurements.

Several new scientific systems have developed from the metric system such as the C. G. S. (centimeter, gram and second) adopted by the International Conference of Electricians as early as 1881. Recently the International Electro-Technical Commission decided to adopt the "MKS," based on the meter, kilometer, and second.

Russian Magazine Gives Data On USSR Metal Standards

Basic principles of the first USSR standards for castings, with classification and methods of determination of microstructure of grey iron castings are published in *Vestnik Standardizatsii*, May-June.

A list of standards of the non-ferrous metal industry, with a short technical review of each standard, is given in the April issue.

This magazine is published in the Russian language. Copies may be borrowed from the American Standards Association Library.

of the *National Formulary* will be the first undertaking of the laboratory. The Formulary is a book of standards for drugs and medicines compiled and published by the association. It is recognized by the Federal Government under the Food and Drugs Act as an official publication which all manufacturers and dispensers of medicines must follow.

Dr. George D. Beal of Pittsburgh, president of the association, announced that a research program was started a year ago at the University of Illinois. Until that time the association had depended on research carried on by various colleges. Dr. Beal said that the need was for greater facilities for prompt and thorough checking of standards to meet changing commercial conditions.

Institute of Pharmacy Plans "Standards Bureau"

A research laboratory to serve as a "bureau of standards" for medicines prescribed by physicians and used in the home will be installed in the American Institute of Pharmacy, Washington, D. C., next year, it was announced at the convention of the American Pharmaceutical Association, New York, August 20.

Research in connection with the compilation

Railroads Follow Standards In Ordering Freight Cars

Almost 92 per cent of the house and hopper types of freight cars ordered by the railroads in the 14-month period ended June 7 conformed completely, or very closely, to the standards of the Association of American Railroads. An article telling about the A.A.R. standards was published in *Railway Age*, August 14.

¹From an article by a special correspondent to the *New York Times*.

Dentists Rely on Standards¹

Research leads to standard tests, certification, and labeling of materials to give public better service, longer wear on dental repairs

by

Wilmer Souder

*Principal physicist and chief,
Dental Research Laboratory,
National Bureau of Standards*

THE cooperative research between the National Bureau of Standards and the American Dental Association has developed into a standardization program which approaches the ideal in this field.

The manufacturer who produces the dental material, the dentist who creates the restoration, and the patient who uses the restoration are all represented in the research and each profits as the research and standardization program develops.

Dentistry as a scientific profession is scarcely more than 100 years old. Until 1926 there were no definite standards for restorative materials. Manufacturers and salesmen urged prospective customers to purchase special brands and frequently offered as the chief argument for the purchase of their product the endorsement of a prominent dentist. An inspection of catalogs or professional literature 25 years back will show item after item designated with no informative description other than the name of a dentist associated with the name of the item.

50 Years' Service

The service life of dental restorations is quite indefinite and varies from patient to patient, from dentist to dentist, and from raw product to raw product. Inquiries on this subject will frequently disclose a restoration which is giving entire satisfaction and which has given satisfaction for 20, 30, or perhaps 50 years. The patients so for-

tunate as to have such restorations always give credit for these unusual service records to the dentists who placed the fillings, bridges, or dentures; and indeed the dentists do deserve much of the credit.

When a restoration fails it is usually the dentist's dilemma to explain the failure. Shall he say the filling material was defective or the patient's teeth are defective? Whose fault is it that defective materials were used? Then why do fillings placed earlier continue to be satisfactory? The circles interlock and involve the manufacturer, dentist, and patient, with the patient paying all expenses.

Want Good Quality

An observing dentist could by systematic study and observation eliminate the inferior materials and injurious technics and eventually develop a fairly safe procedure. Unfortunately after completing this type of research he would not have many years left for active practice. It is not strange that the items which successful dentists proved and adopted should be sought out by others and that these items should be associated with the respective names.

Styles change, new products are developed, manufacturers sell their plants, new equipment is designed, and new technics are advocated. The professional man with something new always catches clients. What shall a young dentist do under these circumstances? Ten years of experimentation on patients or ten years working behind his associates were the nightmares of many con-

¹Publication approved by the Director, National Bureau of Standards, U. S. Department of Commerce.



J. R. Beall, Research Associate, American Dental Association, testing dental amalgam alloys.

Dental amalgam must expand as it sets. The interferometer is the ideal instrument for measuring length changes during setting.

The two flow meters, in the background, determine the rigidity of the amalgam. More than 4 per cent flow in 21 hours means rejection of the alloy.

scientific graduates of our best dental schools.

Standardization of materials and technics used in dentistry was started by the National Bureau of Standards in 1919 although the Bureau did not at that time realize that it was laying the foundation for this important research. An official communication from the War Department requested that the Bureau test a number of dental amalgam alloys and report on their merits.

The tests agreed upon were: (1) dimensional change upon setting, (2) flow under light load, and (3) ultimate crushing strength. The last-named item is no longer included in the standard tests.

It was a surprise to find many amalgam alloys developing a shrinkage upon crystallization, and others flowing excessively under light loads.

The findings on these alloys and several additional alloys were published. There was no definite response for several months and then a small private testing laboratory (The Weinstein Research Laboratory) in New York City suggested that a similar inspection should be made of dental gold alloys, accessory dental materials, and more especially of the dental technics employed by the dentists in producing gold restorations.

Sponsors Research Program

From 1922 to 1928 that laboratory sponsored a research program in cooperation with the Bureau. Since 1928 the research has been conducted in cooperation with the Research Commission of the American Dental Association. These two cooperative research programs have been very valuable

to the Bureau and to those branches of the Government conducting dental services.

It would not add to the value of this paper to recite the many difficulties encountered in producing the various dental restorations. It would be entertaining but not profitable to recite the explanations of and cures for these difficulties which were current 25 years ago.

Accurate impressions of the cavities in teeth or of the teeth and spaces between teeth are necessary in making inlays or partial dentures. These impressions, whether in wax, plaster, shellac, or agar, must maintain their accuracy until a positive reproduction of the tooth or teeth is generated, into which or against which the inlay or partial denture may be cast or molded. Unfortunately dental alloys and plastic materials change dimensions as they cool to room temperature or cure or harden at room temperature. With different brands of materials available for these different operations and with each dentist advocating a different technic, is there any wonder that confusion reigned in the profession and possibly misfits in the mouths of the patients?

The first reactions to the dental research program at the National Bureau of Standards were far from enthusiastic. Dentists thought they saw another source of disturbance or uncertainty. Manufacturers feared added wrangling with dentists and the further development of small independent and possibly unreliable manufacturers who might take much of their business from them.

The research showed defects in most materials, and variations in many materials from year to year. Interferometers were recommended for more accurate and incidentally for more conven-

ient measurements of dimensional changes in dental amalgams. Improvements were made in flowmeters. Simpler equipment was designed for use in measuring thermal expansion. Casting shrinkages were determined with the utmost precision on a new type of instrument. Potentiometers were substituted for pyrometers on dental furnaces and testing equipment.

Accurate data were secured, curves were plotted, computations were made, and technics were outlined in terms of materials of definite properties, definite temperatures, definite times, definite consistencies, etc.

Volunteer dentists tried these rigid technics using tested materials and were rewarded with restorations of remarkable excellence. The elements of luck and sleight-of-hand did not have to be invoked.

Interested manufacturers began to appear. These were kept advised of the developments. The response by these manufacturers was evident in

improved and more uniform raw materials costing perhaps more to produce. Other manufacturers developed confidence in the value of testing their products and increased their control and testing departments. The first minimum standard of quality was set up for dental amalgam alloys in 1926. The minimum values were, for many firms, dangerously near and frequently superior to the maximum values for their product. Such manufacturers could (1) ignore the standard and sell where and when they could find a supply house or dentist willing to handle their material, (2) bring the product up to standard, or (3) withdraw from the dental field. Some chose the third option. Some chose the first. Their experiences will be reviewed later. The greater number chose the second option. So far as the manufacturers are concerned let it be said here that this standardization of materials has given the manufacturer of the better grade products his first effective protection from encroachments by manufacturers of in-

Type of literature, labels, and stickers used by manufacturers of zinc-phosphate cements certified to the American Dental Association. Similar forms are used for the eight additional dental materials.

S.S. White
ZINC CEMENT
CROWN - BRIDGE - INLAY
GUARANTEED TO COMPLY WITH A. D. A. SPECIFICATION NO. 8
THE S. S. WHITE DENTAL MFG. CO.

Z-M
CROWN AND BRIDGE CEMENT
LIGHT
CONTENTS 1 OZ.

Z-M
LIQUID
FOR CROWN AND BRIDGE CEMENT
CONTENTS 1 1/2 OZ.

COMPLIES WITH TENTATIVE A. D. A. SPECIFICATION NO. 8 - EFFECTIVE JULY 1st, 1935

LANG DENTAL CEMENT IS GUARANTEED TO MEET THE REQUIREMENTS OF AMERICAN DENTAL ASSOCIATION SPECIFICATION COVERING DENTAL CEMENTING MEDIUMS.

FLECK'S
Oxyphosphate of Zinc CEMENT
Ideal for crown and bridge work, porcelain and gold inlay and jacket work
Manufactured by THE J. R. STANLEY CHEMICAL CO. NEW YORK

COLORS
Snow White
Light Yellow
Yellow
Golden Yellow
Light Gray
Pearl Gray
Light Brown
Golden Brown
Reddish Brown
Grayish Brown
Dark Grayish Brown
Complies with A. D. A. Specification No. 8
MADE IN U. S. A.

SMITH'S CEMENT
ALL A. D. A. 5
COMPLIES WITH A. D. A. SPECIFICATION NO. 8
LIQUID
MADE IN U. S. A.

CAULK
CROWN & BRIDGE CEMENT
LIQUID
THE L. D. CAULK CO. MILFORD, DELAWARE TORONTO, CANADA

ferior products which everyone realizes can be produced and sold for less than first quality products. An elaboration of this situation will be given later.

With the advent of the organized American Dental Association into this research there came a means for the prompt transmission of our findings to the profession. Dentists were not slow in finding a possible explanation for some of their failures. Many raw materials on the market were inferior; why should one expect such materials to give satisfaction? This alibi was only half satisfactory. It explained to the patient the causes of failures but left no alternative for the dentist except to assure the patient that from then on he would use only the best materials.

The research on technics also aided many dentists to decide which of the many laboratory practices were sound. He was shown proof that he should cast gold alloy into a hot investment mold. He was shown that he should not delay the setting of an amalgam alloy by reworking it so as to fill two or three cavities with the same mix. An experiment was outlined to enable him to determine the solubility of his cements. He was warned that the natural color denture base materials (in 1936 and 1937) were not proven to be permanent, and should be accepted as experimental. Information is constantly flowing to the dentist through the Monthly Journal of the American Dental Association, through lectures before dental societies, and through conferences at the Bureau.

The more important detail of this program and that which will be most appreciated by the members of the American Standards Association is the plan by which the dentist is assured that his materials are standard in quality. The Research Commission of the American Dental Association, with the cooperation and aid of the Bureau, tests materials against specifications. The Commission then prepares and publishes a list of those materials which meet the corresponding specifications with the name of the manufacturer of each material.

Listing Is Free

A manufacturer is not taxed for, or asked to aid financially, the Bureau or the Association in order to get his product listed. The listing is free. A manufacturer wishing to certify that his product is up to standard and will be kept to standard must furnish the Association with a formal statement embodying these facts. He must at the same time furnish sheets of laboratory data to support the claim that the product has been tested by the manufacturer. The name of the testing engineer must be given. Upon receipt of this formal agreement the Association secures samples of the pro-

duct under consideration and makes tests to see whether or not the market samples are up to standard. If these meet the standard the manufacturer is so advised and his name, with his trade brand is added to the list of manufacturers who have certified they are producing and maintaining products up to the standard set by the Association. Such a list appeared in the August, 1937 Journal of the American Dental Association.

Control Testing Costly

Although the manufacturer pays no fee or royalty to the Association or to the Bureau for this listing it does cost a neat sum to keep his plant control testing constantly in operation, and for the reclamation of defective materials which he dares not permit to leave his plant.

The listing on the announcement of certified materials may appear to be an insignificant item but no reputable manufacturer cares to see his name omitted or dropped from the list. Dentists and dental salesmen watch these lists closely. Salesmen attempting to sell unlisted products find it more and more difficult to ignore this plan. The dentist himself is paying 30 cents a year for this service and is certain to ask the salesman why the product is not listed. Attempts to explain the omission usually lead to suspicions and loss of sales.

More than 60 reports on this work have appeared in the dental journals. A list of these may be secured by those interested in the work.

Standards have been established for

1. Dental amalgam alloy
2. Inlay casting investment
3. Impression compound
4. Inlay wax
5. Inlay casting gold alloys
6. Dental mercury
7. Wrought gold alloy wires
8. Zinc phosphate cement
9. Dental silicate cement

The special committee of the Research Commission of the American Dental Association actively in contact with this work is composed of the following members:

- Dr. P. C. Lowery, Detroit, Mich.
- Dr. R. H. Volland, Iowa City, Iowa
- Dr. M. D. Huff, Atlanta, Ga.
- Dr. H. E. Kelsey, Baltimore, Md.
- Dr. D. F. Lynch, Washington, D. C.

The research associates stationed at the National Bureau of Standards are

- George C. Paffenbarger, D.D.S.
- William T. Sweeney, A.B.
- John R. Beall, B.S.
- Howard J. Caul, B.S.

I. C. Schoonover, Ph. D., associate chemist of the National Bureau of Standards, gives full-time service to this research.

The National Bureau of Standards attempts to

contribute an equal share through designated personnel and advising experts who direct the laboratory testing and supply standard instruments, calibration, and editorial services.

The research has achieved international recognition and commands the respect of all dental organizations seeking improvements in materials and technics.

This program reaches from the manufacturer to the consumer and is mutually helpful to all concerned. Similar programs could be established for many other commodities if the users of these commodities would take the situation as seriously as does the American Dental Association.

A.S.T.M. Issues New Edition Of Petroleum Standards

The 1937 edition of all A.S.T.M. standards on petroleum products and lubricants, in their latest approved form, has just been published by the American Society for Testing Materials. The book includes 58 test methods, seven specifications, and two lists of definitions of terms relating to petroleum and to materials for roads and pavements. In addition, two proposed methods, approved for publication as information and for comment, are given as part of the 1937 annual report of Committee D-2, covering unsulfonated residue of plant spray oils and dropping point of lubricating greases.

The 1937 D-2 report also details numerous changes in the standards and gives the revised Diesel-fuel-oil classification.

Also included are subcommittee reports pertaining to turbine oils and natural gasoline and a paper discussing method for converting kinematic viscosity to Saybolt universal viscosity.

Copies of the book, *Standards on Petroleum Products, 1937*, may be ordered through the American Standards Association, or from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, at \$2.00 each.

Tolerances Added in Brick Recommendation

The first revision of Simplified Practice Recommendation R38 on Sand-Lime Brick, effective June 15, 1937, adds tolerances of $\frac{1}{8}$ inch in width and in thickness, and $\frac{1}{4}$ inch in length¹ but makes no change in the already established standard size of the brick.

The standard size, 8 inches long, $3\frac{3}{4}$ inches

wide, and $2\frac{1}{4}$ inches thick, was approved and accepted in 1925 by a general conference of the industry. Before adoption of the standard size, a survey had shown that a large percentage of the brick produced conformed to these dimensions.

The revision of the recommendation was approved by the industry's standing committee during the annual convention of the Sand-Lime Brick Association, February, 1937.

At this meeting, Dr. L. S. Wells, chairman of the standing committee and chief of the Lime and Gypsum Section, Clay and Silicate Products Division, National Bureau of Standards, reported that 763 bricks, representing 100 samples from various parts of the country, had been tested and over 90 per cent were found to conform to the standard size within these tolerances.

"These tests indicate that the majority of producers of sand-lime brick are striving to conform to the standard size originally adopted," says the National Bureau of Standards in its announcement. "While the committee recognized the fact that sand-lime brick produced in certain sections of the country are larger than the recommended standard size, because of local requirements or custom, it felt that the same tolerances would apply to these oversize brick; and that the addition of the tolerances will make the recommendation complete and a better guide in production, distribution, and use of sand-lime brick."

Until printed copies are available, free mimeographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Drawings Available for V-Belt Testing Machines

Working drawings have been prepared by the Society of Automotive Engineers Standards Committee from which a machine may be constructed to test V-belts by methods given in the new SAE Standard for V-Belts and Pulleys.

The design of the fixture has been made as simple as possible to give uniformly comparable results and long service.

These drawings (SAE Nos. 7-7-10 and 7-7-11) are available to members of the Society at 50 cents per set; to non-members at \$1.00 per set. Orders should be addressed to Standards Department, Society of Automotive Engineers, 29 West 39th Street, New York.

¹These tolerances are the same as those of the A.S.T.M. Standard Specifications for Sand-Lime Building Brick (A.S.T.M. C73-30), except that the A.S.T.M. standard provides 1/16 in. in thickness instead of 1/8 in.

Annual Report of Petroleum Committee Notes Advance in Gasoline Standards

PROGRESS in the study and development of standard specifications for gasoline is shown in the Annual Report of T. A. Boyd, chairman of the Sectional Committee on Petroleum Products and Lubricants.

Since its organization in 1936, 19 standard methods of test of the American Society for Testing Materials have been reviewed by the sectional committee and referred to the American Standards Association for approval as either American Standards or American Tentative Standards. Tentative specifications for gasoline, approved by the A.S.T.M. in March, and published as A.S.T.M. standard D 439-37 T, are now being considered by the committee.

Summaries of standardization and research work on petroleum products in the United States are being prepared to help the committee in its work, and it is hoped that they may be made generally available. In addition to these general summaries, a special committee has been appointed to prepare a study of the physical properties of lubricants under conditions of boundary lubrication.

There is no need at present for a viscosity classification of industrial lubricants, a special committee reported to the sectional committee. It recommended that action on any such classification should be postponed until more emphatic requests have been received from users of oil.

The report of the sectional committee emphasizes the need for such a coordinating committee to cover work on all phases of petroleum standards under the procedure of the American Standards Association. The administrative guidance of this committee is in the hands of the American Society for Testing Materials.

Report Sectional Committee on Petroleum Products and Lubricants (ASA Project: Z11)

The organization of the new Sectional Committee on Petroleum Products and Lubricants was effected at a meeting held on January 24, 1936, in New York City. A further meeting was held July 1, 1936, during the annual meeting of the American Society for Testing Materials, at which

the permanent officers were elected and other details of organization completed. Two meetings have been held subsequently. The sectional committee functions under the procedure of the American Standards Association with the A.S.T.M. as sponsor, the approved scope of the sectional committee being as follows:

Scope.—Specifications, methods of test and nomenclature relating to crude petroleum and petroleum products (products derived in whole or in large part from petroleum) other than organic chemicals, products used medicinally, and road, paving, waterproofing, and electrical insulating materials.

Organize Sectional Committee

For a number of years A.S.T.M. Committee D-2 on Petroleum Products and Lubricants has been developing standard methods of test for petroleum products and lubricants and has published critical studies of the significance of these tests in relation to service performance of the products. All of this work is fundamental and essential in paving the way for the development of specification requirements for petroleum products. Many agencies, trade associations, and industrial companies have indicated an increasing interest in specification work and in order to plan and coordinate standardization work in this field, steps were taken to organize the sectional committee. Under ASA procedure, two sectional committees were functioning in this field, dealing with nomenclature and methods of testing and also specifications for fuel oils, and the work of these two bodies is covered by the new sectional committee which is known as ASA Project Z11. This is the same designation applying to the former sectional committee dealing with test methods.

The personnel of the committee is made up of representatives of 32 national technical organizations interested in lubrication, the classification of the personnel being as follows: producers 12, consumers 22, general interest members 7, making a total of 41 members.

In order that complete information might be available to members of the sectional committee with respect to work in progress both of a standardization and research nature in the field of the sectional committee, summaries of work in progress in the field of petroleum products are in course of preparation. These relate to lubricating oils, to greases, to gasoline, both motor and avia-

tion, and to fuel oils for furnace and for Diesel engines. It is hoped later to make these compilations available through publication. A special committee was appointed to prepare a general discussion with respect to the physical properties

of lubricants, under conditions of boundary lubrication, such as, oiliness, film strength, etc. The chairman of the special committee is J. C. Geniesse.

Another special committee under the chairman-

These thirty-nine Standards in the field of petroleum products have been approved by the American Standards Association.

- *Standard Abridged Volume Correction Table for Petroleum Oils (ASA Z11.1-1936; A.S.T.M. D 206-36; A.P.I. 500-36)
- *Viscosity by Means of the Saybolt Viscosimeter, Method of Test for (ASA Z11.2-1936; A.S.T.M. D 88-36; A.P.I. 518-36)
- Penetration of Greases and Petroleum, Method of Test for (ASA Z11.3-1933; A.S.T.M. D 217-33 T)
- *Melting Point of Paraffin Wax, Method of Test for (ASA Z11.4-1937; A.S.T.M. D 87-37; A.P.I. 513-37)
- Cloud and Pour Points, Method of Test for (ASA Z11.5-1934; A.S.T.M. D 97-34; A.P.I. 506-34)
- Flash and Fire Points by Means of Open Cup, Method of Test for (ASA Z11.6-1933; A.S.T.M. D 92-33; A.P.I. 511-33)
- *Flash Point by Means of the Pensky-Martens Closed Tester, Method of Test for (ASA Z11.7-1936; A.S.T.M. D 93-36; A.P.I. 510-36)
- Water and Sediment in Petroleum Products by Means of Centrifuge (ASA Z11.8-1935; A.S.T.M. D 96-35; A.P.I. 520-35)
- Water in Petroleum Products and Other Bituminous Materials, Method of Test for (ASA Z11.9-1930; A.S.T.M. D 95-30; A.P.I. 519-30)
- Distillation of Gasoline, Naphtha, Kerosene, and Similar Petroleum Products (ASA Z11.10-1935; A.S.T.M. D 86-35; A.P.I. 507-35)
- Distillation of Natural Gasoline, Method of Test for (ASA Z11.11-1932; A.S.T.M. D 216-32; A.P.I. 508-32)
- Neutralization Number of Petroleum Products and Lubricants, Method of Test for (ASA Z11.12-1928; A.S.T.M. D 188-27 T)
- Sulfur in Petroleum Oils by Bomb Method, Method of Test for (ASA Z11.13-1934; A.S.T.M. D 129-34; A.P.I. 516-34)
- Thermal Value of Fuel Oil, Method of Test for (ASA Z11.14-1928; A.S.T.M. D 240-27; A.P.I. 517-29)
- *Steam Emulsion of Lubricating Oils, Method of Test for (ASA Z11.15-1936; A.S.T.M. D 157-36; A.P.I. 515-36)
- *Grease, Method of Analysis of (ASA Z11.16-1937; A.S.T.M. D 128-37; A.P.I. 501-37)
- *Burning Quality of Kerosene Oils, Method of Test for (ASA Z11.17-1936; A.S.T.M. D 187-36; A.P.I. 502-36)
- Burning Quality of Mineral Seal Oil, Method of Test for (ASA Z11.18-1930; A.S.T.M. D 239-30; A.P.I. 504-30)
- *Burning Quality of Long-Time Burning Oil for Railway Use, Method of Test for (ASA Z11.19-1936; A.S.T.M. D 219-36; A.P.I. 503-36)
- *Saponification Number, Method of Test for (ASA Z11.20-1936; A.S.T.M. D 94-36; A.P.I. 514-36)
- Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline, Method of Test for (ASA Z11.21-1930; A.S.T.M. D 130-30; A.P.I. 521-30)
- Melting Point of Petrolatum, Method of Test for (ASA Z11.22-1932; A.S.T.M. D 127-30; A.P.I. 523-30)
- Determination of Autogenous Ignition Temperatures, Method of Test (ASA Z11.23-1932; A.S.T.M. D 286-30; A.P.I. 522-30)
- *Flash Point by Means of the Tag Closed Tester, Method of Test for (ASA Z11.24-1936; A.S.T.M. D 56-36; A.P.I. 509-36)
- *Carbon Residue of Petroleum Products (Conradson Carbon Residue), Method of Test for (ASA Z11.25-1936; A.S.T.M. D 189-36; A.P.I. 505-36)
- Gas Oils, Methods of Testing (ASA Z11.26-1932; A.S.T.M. D 158-28; A.P.I. 512-29)
- Expressible Oil and Moisture in Paraffin Waxes, Method of Test (ASA Z11.27-1932; A.S.T.M. D 308-29 T)
- *Tentative Definitions of Terms Relating to Petroleum (ASA Z11.28-1936; A.S.T.M. D 288-36 T)
- Dilution of Crankcase Oils, Method of Test (ASA Z11.29-1935; A.S.T.M. D 322-35; A.P.I. 524-35)
- Precipitation Number of Lubricating Oils (ASA Z11.30-1935; A.S.T.M. D 91-35; A.P.I. 527-35)
- *Gravity of Petroleum and Petroleum Products by Means of the Hydrometer, Method of Test for (ASA Z11.31-1937; A.S.T.M. D 287-37; A.P.I. 526-37)
- *Distillation of Crude Petroleum, Method of Test for (ASA Z11.32-1936; A.S.T.M. D 285-36; A.P.I. 525-36)
- Sampling Petroleum and Petroleum Products, Standard Methods of (ASA Z11.33-1935; A.S.T.M. D 270-33; A.P.I. 528-33)
- Color of Lubricating Oils by Means of A.S.T.M. Union Colorimeter, Method of Test (ASA Z11.34-1935; A.S.T.M. D 155-34 T)
- Color of Refined Petroleum Oil by Means of Saybolt Chronometer, Method of Test (ASA Z11.35-1935; A.S.T.M. D 156-34 T)
- *Gum Content of Gasoline, Method of Test for (ASA Z11.36-1936; A.S.T.M. D 381-36; A.P.I. 529-36)
- *Knock Characteristics of Motor Fuels, Method of Test for (ASA Z11.37-1937; A.S.T.M. D 357-37 T)
- Sulfur in Petroleum Oils by Lamp Method, Method of Test (ASA Z11.38-1935; A.S.T.M. D 90-34 T)
- *Viscosity-Temperature Chart for Liquid Petroleum Products (ASA Z11.39-1937; A.S.T.M. D 341-37 T)

Seventeen of these, indicated by an asterisk, have been acted upon since the organization in 1936 of the Sectional Committee on Petroleum Products and Lubricants (Z11).

ship of L. C. Beard, Jr., has investigated the possibility of setting up a general viscosity classification of lubricating oils. After much study, this group has just rendered the following report to the committee, which it has approved:

"It is the opinion of the committee that at present there appears to be no marked need for a viscosity classification of industrial lubricants and, under the circumstances, it appears reasonable to postpone any action on such a classification until such time as requests from the users of oil are more emphatic. It would be extremely difficult to make an industrial lubricating oil classification which would be satisfactory to both consumers and producers. Such a classification, if written so as to reduce the number of grades required and to simplify specification writing, would undoubtedly in most instances be too broad to serve any useful purpose."

N.R.D.G.A. Names Lew Hahn As Its Managing Director

The National Retail Dry Goods Association, Member-Body of the American Standards Association, announces that Lew Hahn is to be its managing director.

Mr. Hahn is dropping out of active participation in the Syndicate Alliance Trading Company to take up his new duties. He had experience with the N.R.D.G.A. as its managing director for ten years from 1918 to 1928. At that time he became head of the Hahn Department Stores, now the Allied Stores Corporation, where he continued until September, 1933. During the NRA period he served for two years as a member of the Industrial Advisory Board, and was a member of Secretary Roper's Business Advisory Council for four years.

The National Retail Dry Goods Association is taking an active part in the program of the American Standards Association on standards for consumer goods. Harold W. Brightman, chairman of the N.R.D.G.A. Standards Committee is chairman of the ASA Advisory Committee on Ultimate Consumer Goods.

Germans Describe Procedure For Tests on Prime Movers

Standard procedure for acceptance tests on prime movers and associated equipment has been set up by the Association of German Engineers. The rules deal with the purpose of the tests, the method of performing them, and the evaluation and presentation of results.

The first of this new series of rules is the VDI-

The matter of specifications for motor gasoline was delegated to A.S.T.M. Committee D-2 on Petroleum Products and Lubricants. Through its Technical Committee A on Gasoline, this committee has given considerable study to the formulation of such specifications and has submitted to the Society during the year tentative specifications for gasoline, which were approved and published under the Designation D 439-37 T.

These specifications are now before the sectional committee.

In line with its function as a reviewing body, the sectional committee has taken action on 19 A.S.T.M. methods for reference to the American Standards Association for approval either as American Standard or American Tentative Standard. —T. A. BOYD, *Chairman*; R. E. HESS, *Secretary*.

Temperaturmessregeln, dealing with thermometry and temperature measuring devices of all kinds, as required in or applicable to acceptance tests on any equipment. These rules, according to *Electrical Industries and Investments*, London, constitute a practical monograph on means and methods of temperature measurement.

A large part of the publication deals with electric resistance thermometers, thermocouples, and radiation pyrometers, which are essentially electrical devices.

The publication draws attention to possible faulty arrangements of apparatus, gives instructions for practical procedure, and presents an extensive classified bibliography to German literature on the subject.

Brush Industry Approves Simplified Lists of Brush Sizes

Floor sweeps, counter, window, and radiator brushes have been added to the Simplified Practice Recommendation program, with acceptance by the industry of Simplified Practice Recommendations R88-37 and R167-37.

These recommendations were proposed and developed by a committee of the American Brush Manufacturers Association. They contain simplified lists of stock sizes and varieties of brushes, including length of blocks, length of handles, number of holes in blocks, symbols to indicate type of brush, and fillings or mixtures for each kind of brush.

Until printed copies are available, complimentary mimeographed copies of these two Simplified Practice Recommendations may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Frank B. Jewett Will Be ASA Annual Meeting Speaker

December 1, 1937

**Hotel Astor, New York
Broadway at 44 Street**

**1 P. M. Luncheon
Frank B. Jewett, Speaker**

**President's Report
Dana D. Barnum**

**Standards Council Report
F. M. Farmer**

**3:30 P. M.
Board of Directors' Meeting**



FRANK B. JEWETT

Frank B. Jewett, Vice-President, American Telephone and Telegraph Co., and President, Bell Telephone Laboratories, speaker at the Annual Meeting of the American Standards Association, is a Fellow and past president of the American Institute of Electrical Engineers. He is an outstanding figure in the field of industrial research, many of the most important advances in the field of communications having been made by the Bell Telephone Laboratories and Western Electric Co. during his thirty years service with them. Holder of several honorary degrees and medals, including the Edison Medal and the degree of Doctor of Science from Harvard University, Dr. Jewett has been invested with the Fourth Order of the Rising Sun by the Japanese government.

Promote Use of Standards, Urges Machinery Editorial

"Some time ago we quoted on this page the old saying, 'It isn't enough to convince a man that you are right; you must get him to act on his conviction.'"

"This applies with especial force to engineering standardization work. Much commendable effort has been spent in the standardization of equipment, methods, and products. Users and makers have cooperated in bringing about the adoption of standards acceptable to both groups.

"The formulating and approving of standards is well organized; but after a standard has been duly adopted, the work of introducing it as the universal standard of industry is less well developed and organized. The engineering and trade journals are ready to be of service to the standardization committees in calling attention to newly adopted standards and in presenting the essential facts pertaining to their adoption.

"The important work of a standardization committee is not finished when an acceptable standard has been agreed upon. Part of the committee's work should consist in the promotion of the use of the standard. It should be given as wide publicity as possible, and the importance of the standard to industry should be emphasized.

"An adopted standard, to be useful, must be an applied standard."—*Machinery*, June, 1937.

New Zealand Standards Cover Hundred Million Dollar Buying

The New Zealand government annually purchases 20,000,000 £ (approximately \$100,000,000) worth of products according to standards set up by the New Zealand Standards Institution, Walter Nash, New Zealand Minister of Finance told the British Standards Institution recently.

In line with the policy laid down by Empire Conferences, British Standards are given careful consideration as the basis of New Zealand standards and are adopted whenever applicable.

Concentric or Eccentric?

The Society of Automotive Engineers has been requested to develop a standard definition for eccentricity or concentricity tolerances, the method of expressing them, and the indicator readings.

In the request it is stated that, for example, in laying out a sleeve bearing, one group of engineers may specify "concentric within 0.0005 in." A different group will specify "concentricity 0.0005 in." and still another group will specify "eccentricity 0.0005 in." This indefiniteness of expressing the tolerances frequently is confusing in determining the amount of indicator run-out that should be allowed.

The problem has been referred to the Standards Committee for clarification.

1937

National Electrical Code

For "the practical safeguarding of persons and of buildings and their contents from electrical hazards arising from the use of electricity for light, heat, power, radio, signalling and for other purposes".

Complete change in form and arrangement of 1937 edition makes for increased convenience to users.

Includes:

- New technical provisions.
- Clarification of specifications.
- Removal of all possible ambiguities through clear concise statements.

National Electrical Code (C1-1937) 5c

Developed under the leadership of the National Fire Protection Association; published by the National Board of Fire Underwriters.

Order from ↓

American Standards Association

29 West 39th Street

New York